Using spatial data to highlight sustainable tourism paths in Uusimaa

Technical report **Aurelie Noel** **July 2025**

Spatial data, tourism, sustainability, Sustainable Travel Finland - EN

INTRODUCTION

International and national frameworks and commitments define today's tourism landscape in the fight against climate change. The Glasgow Declaration on Climate Action in Tourism, launched in 2021 during the United Nations Climate Change Conference (COP26), is implemented and supported notably through the One Planet programme on Sustainable Tourism[1] and works towards cutting tourism emissions to reach Net Zero by 2050.

Finland is no exception and is actively pursuing being a trailblazer in sustainable development, aiming to become the most sustainably growing tourism destination in the Nordic countries[2]. Hence, when signing the Glasgow Declaration in 2022, Visit Finland has committed to a Climate Action Plan[3]. The same year, the Ministry of Economic Affairs and Employment also published the national tourism strategy (2022-2028), supporting sustainable growth and renewal in Finnish Tourism[2]. In 2023, the Sustainable Travel Finland (STF)[4] programme, as a part of Finland sustainability initiatives, was launched by Visit Finland. The programme aims to support tourism companies and destinations to establish sustainable practices and then being recognized through the STF label awarded[5] (**Figure** 1).

Figure 1 : STF dashboard tracking STF efforts in Finland – July 2025

[1] https://www.oneplanetnetwork.org/programmes/sustainable-tourism/glasgow-declaration, 2021
[2] https://tem.fi/en/finland-tourism-strategy, 2022
[3] https://www.visitfinland.fi/4ac28d/globalassets/visitfinland.fi/vf-julkaisut/2023/visit-finland-climate-action-plan-2023.pdf
[4] https://www.visitfinland.fi/en/liiketoiminnan-kehittaminen/vastuullinen-matkailu/sustainable-travel-finland, 2023
[5] https://www.visitfinland.fi/suomen-matkailudata/sustainable-travel-finland-tilastot, 2025

Objectives

Carbon Neutral Experience

In Uusimaa, the Carbon Neutral Experience – CNE (2021-2023) and CNE 2.0 (2024-2025) – projects focused on improving the understanding of carbon footprint and sustainable tourism in the region, developing competence within the business sector, and supporting sustainable growth in the tourism services and industries[6]. CNE 2.0[7] activities were funded by Uudenmaan liitto – Nylands förbund and conducted collaboratively by Posintra Oy, and Haaga-Helia and Novia Universities of Applied Sciences.

Several goals were targeted, notably building a network of actors including experts from municipalities, universities, and businesses, and utilizing data and new working methods to advance sustainable tourism. The projects brought companies and destination marketing organizations (DMO) together to work on their way towards carbon neutrality for a just transition, responding to SDG 11 "Sustainable cities and communities". Workshops and seminars were then organized to tackle those goals. To improve self-evaluation, an essential step for the STF label, actors were invited to learn about carbon footprint and emission calculations, sustainable networks, circular economy, regenerative tourism, and interactive mapping. Novia Spatial Competence Centre (SCC) was mandated for this last component. The SCC works mainly with geomatics including geographic information systems (GIS) and spatial data mapping. Spatial data give the context needed for better decision making and maps help to visualize that context.

Spatial Competence Centre mapping

For the CNE 2.0 project, the purpose of the maps is to give an overview of responsible companies and destinations in Uusimaa. "Maps talk for themselves" and are designed to be an easy tool for destinations and companies. They offer a unique way to browse like-minded entrepreneurs to strengthen current network, and identify where the potential synergies are. The maps also help to understand if there are links and processes explaining the reasons why (and why not) companies and destinations made such choice to become more responsible and what to do to promote that choice elsewhere. By a glance, it is easy to identify *hot* and *cold* spots, and consequently where the *effort* should be concentrated or facilitated. Finally, by their nature, maps show how clients (tourists, customers) travel between those spots to eventually bringing the focus on making those *routes* also more sustainable.

METHODS

Process

The mapping started in January 2025 with the gathering of information relevant to the project.

The first presentation[8] of the maps was in March 2025 during a destination workshop with information solely about the CNE 2.0 project participants: where the people from the network are and which accreditations do they have. Maps were presented in a digital static version and an interactive version. Feedback was sought live during the workshop using "CNE 2.0 – feedback on maps" ArcGIS

[6] https://www.cne.fi/en/home/
[7] https://www.novia.fi/fi/tki/projektit/carbon-neutral-experience-2-0-
[8] https://arcg.is/y5q1T1

Survey123 QR code[9] (ESRI, 2025) and simple questions such as “What would you change on the map?”.

The second presentation[10] of the maps was in June 2025 during the final seminar. Only interactive versions were presented and a tutorial video on how to use them inserted. Feedback was sought live again using Mentimeter and questions such as “Do the attractions shown reflect the network you wish to be a part of? Are there any attractions or types of experiences you expected to see but didn’t?”

Layers

In a map, that information is presented in layers. Several layers of information have been added as wished according to feedback received, tailored to the users, and focused on Uusimaa to fulfill the stated goals (**Table** 1). The source of the proprietary data is stated, and open data sources are from Finnish institutions such as National Land Survey (NLS), Business Finland, or Finnish Environment Institute.

Table 1: List of layers

Layer/Information	Components
Actor	Actor participating in the CNE 2.0 project Company in the STF programme Municipality in Uusimaa Point of interest
Transportation	Railway and railway station Bikeway
Valuable national landscape	Nationally valuable landscape National Park
Other	City Roadway

Actor

The project mapping features two main types of actors: companies and DMO and have been classified in distinct groups (**Table** 2). DMO are entities responsible for touristic activities within the destination. A destination is a place for tourists to visit and stay such as a municipality, a city, or a site (e.g., Visit Raseborg or Fiskars Village). They are represented in the layer Actor participating in the CNE 2.0 project via their visitor centre and in the layer Municipality in Uusimaa. Companies are tourism industries whose main activity has been classified according to the STF programme categories (**Table** 3).

[9] https://arcg.is/1rvKDL
[10] https://arcg.is/y5q1T1

Table 2: Categories of actors and respective layers

Layer	Type	Group	Source	Spatial layer
Actor participating in the CNE 2.0 project	Companies and DMO	CNE 2.0 destination network = actor active in the project Participant to workshops = actor participating in workshops[a]	CNE 2.0, 2025	No
Company in the STF programme	Companies	Actor with the label or on the STF path	Business Finland, 2025	No
Municipality in Uusimaa	DMO	Participating or not to the project	CNE 2.0, 2025 NLS, 2025	No
Point of interest	Companies		Outdooractive.fi Ridewithgps.com Bikeland.fi - 2025	Yes

a. As presenters or participants but not facilitators

Table 3: Categories of tourism industries

Main industry	Include
Accommodation	Hotel, hostel, camping, cottage villages, inn, bed and breakfast, holiday homes, campground NB: No private accommodation such as Airbnb
Attraction	Museum, monument, recreation centre, manor, castle, iron works, historical site, nature centre
Ferry service	
Events	Venue
Guided activities	Experience, adventure, well-being
National park	
Other	Consulting, agency, real estate
Outdoor and sports	Biking, canoeing, boating, kayaking
Restaurant	Restaurant, café, bar
Retail and shopping	Local village, shop, local store
Rental services	Bike, canoe
Tours and activities	Tours and guiding, sauna
Transportation	Boat, guest marina
Travel agency	
Destination marketing organization	Responsible for touristic activities within the destination

The non-spatial lists were processed with the geocoding package tidygeocoder (version 1.0.6, Jesse Cambon, 2025) in R to retrieve location coordinates in EPSG 4326 then created as spatial layer (**Table** 2). When the package returned incorrect information, the correct coordinates were manually added using the enterprises Y-tunnus and search engines. The information provided by clicking on the features of the layers is listed in the **Table** 4.

Table 4: Information available on the layers

Information	Content
Name	Name of the actor
Municipality	Municipality where the actor is located (in Finnish)
Main industry	Tourism industry category as per STF (**Table** 3)
STF status	Status regarding the STF path (**Table** 5). Source: Business Finland, 2025
Other accreditations	Other labels or accreditations that the actor has already acquired as indicator of the dedication towards a better tourism (**Table** 6)
Emissions	Emissions calculated during one of the workshops i.e., share of the municipality's tourism emissions of the total emissions in the calculation area.
Footprint	Footprint calculated during one of the workshops. Footprint is the carbon footprint/ per tourist in t CO_2 equivalent.
Website	Website of the actor

The STF status was manually added to the company by searching on the STF dashboard[11] (**Table** 5) and cross-referenced with lists provided by Business Finland (2025). A similar manual search process was used for all labels listed (**Table** 6).

Table 5: STF status

Status	Definition
Sustainable Travel Finland	Actor has an active label or with a renewal pending
On the STF path	Actor is on the STF path or pending approval
No	Actor is not yet on the STF path

Table 6: Possible certifications and accreditations in tourism in Finland

Accreditation	Definition
Green Key[a] Green activities	Sustainability program and certificate for tourism enterprises
Glasgow Declaration[b]	Declaration aims to lead and align climate action across tourism stakeholders.
Sustainable Tourism[c]	Aims to accelerate sustainable consumption and production in tourism policies and practices to address the challenges of pollution, biodiversity loss and climate change (Global).
Good Travel Seal[d]	Use of sustainable management program (necessary to have STF)
HINKU[e]	Carbon Neutral Municipality (National)

a. https://greenkey.fi/en/
b. https://www.oneplanetnetwork.org/programmes/sustainable-tourism/glasgow-declaration/signatories
c. https://www.oneplanetnetwork.org/countries/europe-and-central-asia/finland
d. https://goodtravel.guide/
e. https://hiilineutraalisuomi.syke.fi/hinku/verkoston-jasenet/#hinku-kunnat
f. Other possible accreditations exist: Finnish eco-agrotourism, Biosphere sustainable, Blue Flag, EGLA (European Green Lean Association), Green Globe, ISO standards, commitment to Agenda 2030, sustainability goals, etc.

[11] https://www.visitfinland.fi/suomen-matkailudata/sustainable-travel-finland-tilastot, 2025

Valuable national landscape

In addition to companies and destinations, national parks[12] and nationally valuable landscape areas (VAMA[13]) represent regional touristic motors[14]. Indeed, in Finland, nature-based tourism serving both nature conservation and recreational spaces have gained much interest in the last decades and offer a strong focus on sustainable practices (Puhakka, 2008[15]). They are also responsible for emissions in attracting tourist traffic while not directly generating any revenue (hence no possibility of offsetting or regulating emissions produced).

Transportation

Finally, beyond those actors, transport is an important contributor in terms of emissions within the tourism industries[16], notably private vehicle use to and from destinations, as well as movement within the destination itself[17]. However, the paradox between promoting tourism while alleviating travelling justified adding low-emission transport to the maps (**Table** 7). Low-emission transport modes include train at a national scale and bus at a regional scale. Bicycle infrastructure is also well developed, and many municipalities are working to market it, so they become more inclusive and tailored to the needs of guests and local companies (Visit Raseborg, 2025).

Table 7: Transportation layers

Transport	Mapped	Layer	Information	Source
Train	Railway and railway station	Railway – not querriable Railway station	Name State	NLS, 2025
Bike	Bike routes	Bikeway	Name Description Website Length in km	https://www.outdooractive.com/ https://ridewithgps.com/ https://www.bikeland.fi/ visitkotkahamina.fi, 2025

Mapping

The first versions were built with basic information. The static version was created with QGIS (QGIS.org, 2025, version 3.34). The interactive version was created with R (R Core Team, 2024, version 4.0) packages shiny (version 1.10, Winston Chang, 2025), leaflet (version 2.2, Joe Cheng, 2025) and rsconnect (version 1.4, Aron Atkins, 2025) published on the shinyapps.io platform.

The second interactive versions were built with all the layers above. One version was created with ArcGIS Online (AGOL – ESRI, 2025). The second version was created in QGIS (QGIS.org, 2025, version 3.40), packaged using the plugin qgis2web (version 3.26, Andrea Ordonselli et al., 2025) and the option OpenLayers, and published via GitHub Pages (Novia-SCC/CNE2 repository).

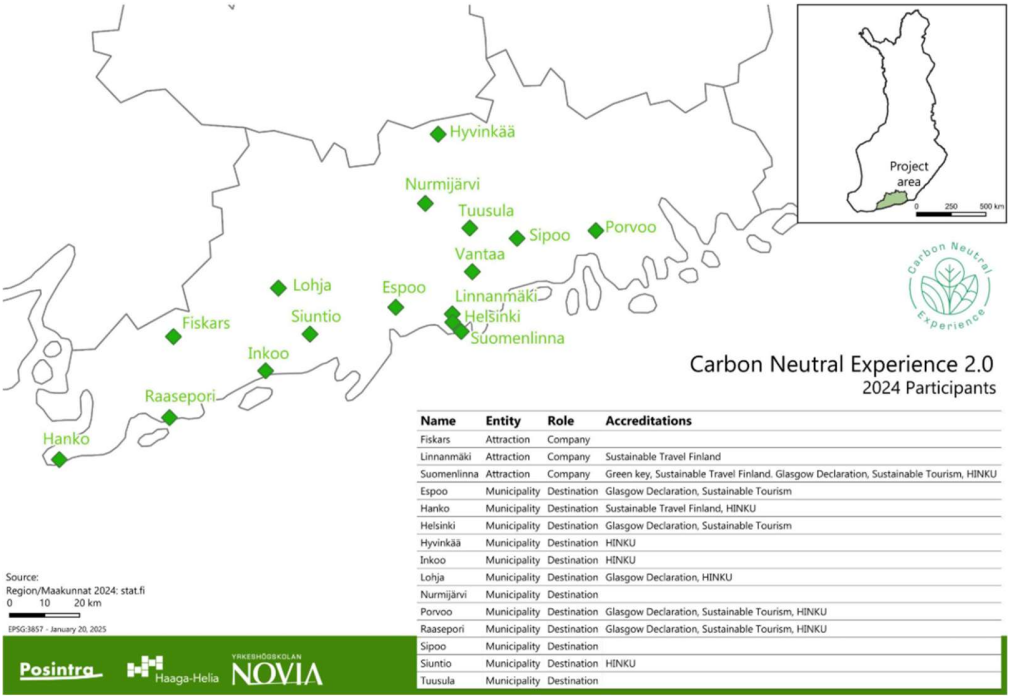
[12] https://www.lipas.fi/etusivu, 2025
[13] https://www.syke.fi/en/environmental-data/downloadable-spatial-datasets#nationally-valuable-landscapes-vama
[14] https://www.ymparisto.fi/en/nature-waters-and-sea/landscape/nationally-valuable-landscape-areas, 2025
[15] Puhakka, Riikka (2008). Increasing role of tourism in Finnish national parks. *Fennia* 186: 1, pp. 47–58. Helsinki. ISSN 0015–0010.
[16] https://www.visitfinland.fi/4ac26e/globalassets/visitfinland.fi/vf-julkaisut/2024/state-of-sustainable-tourism-2023.pdf
[17] https://www.climateguide.fi/articles/tourism-and-recreation-mitigation/, 2025

RESULTS

Maps

Resulting maps

The maps are currently supported and maintained by Novia SCC (**Figure**s 2 – 5).



Name	Entity	Role	Accreditations
Fiskars	Attraction	Company	
Linnanmäki	Attraction	Company	Sustainable Travel Finland
Suomenlinna	Attraction	Company	Green key, Sustainable Travel Finland. Glasgow Declaration, Sustainable Tourism, HINKU
Espoo	Municipality	Destination	Glasgow Declaration, Sustainable Tourism
Hanko	Municipality	Destination	Sustainable Travel Finland, HINKU
Helsinki	Municipality	Destination	Glasgow Declaration, Sustainable Tourism
Hyvinkää	Municipality	Destination	HINKU
Inkoo	Municipality	Destination	HINKU
Lohja	Municipality	Destination	Glasgow Declaration, HINKU
Nurmijärvi	Municipality	Destination	
Porvoo	Municipality	Destination	Glasgow Declaration, Sustainable Tourism, HINKU
Raasepori	Municipality	Destination	Glasgow Declaration, Sustainable Tourism, HINKU
Sipoo	Municipality	Destination	
Siuntio	Municipality	Destination	HINKU
Tuusula	Municipality	Destination	

Figure 2: First static map

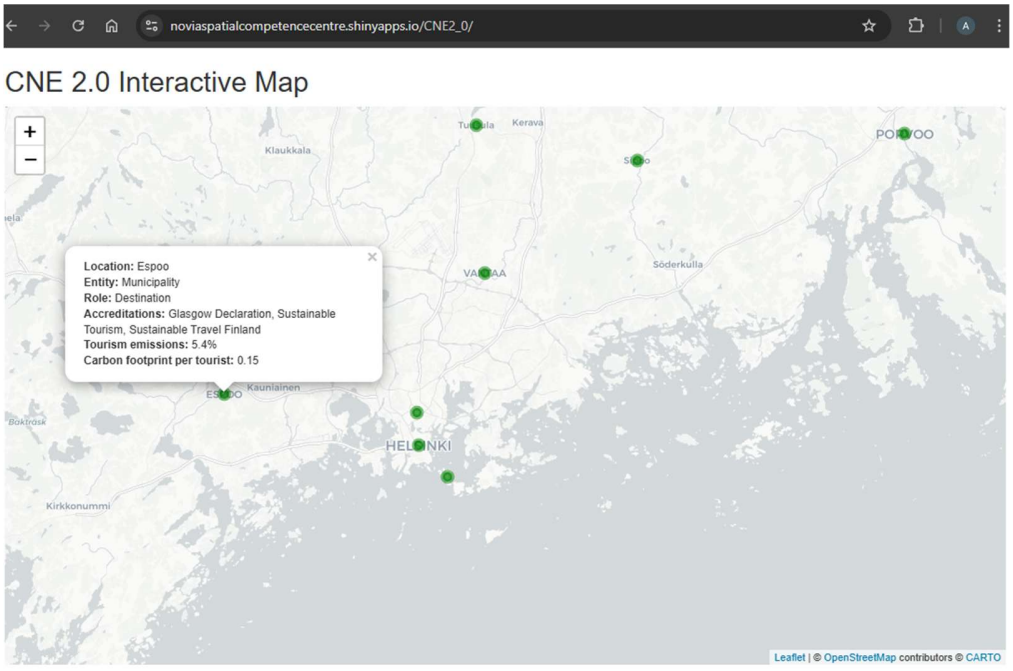


Figure 3: First interactive map - https://noviaspatialcompetencecentre.shinyapps.io/CNE2_0/

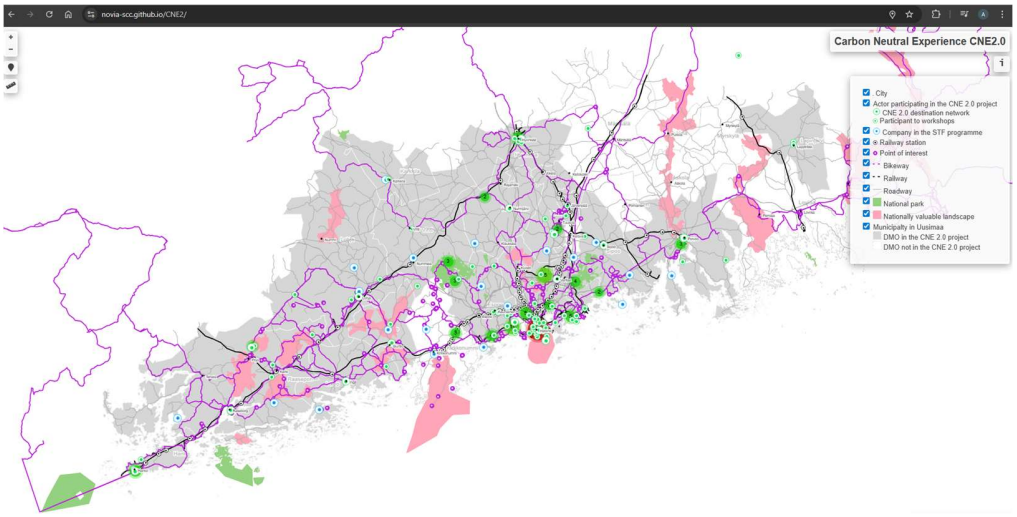


Figure 4: Final seminar map from QGIS/Open Layers/GitHub - https://novia-scc.github.io/CNE2/

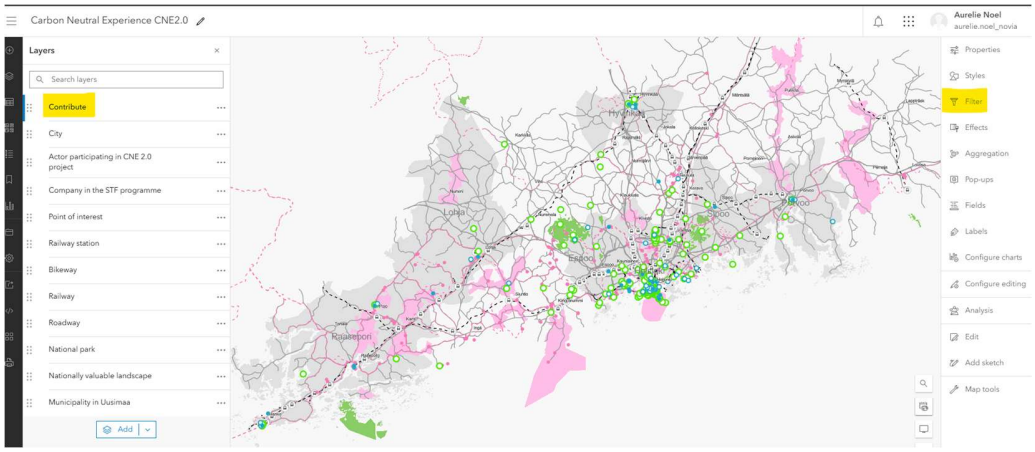


Figure 5: Final seminar map from ArcGIS Online - https://arcg.is/1j0q482

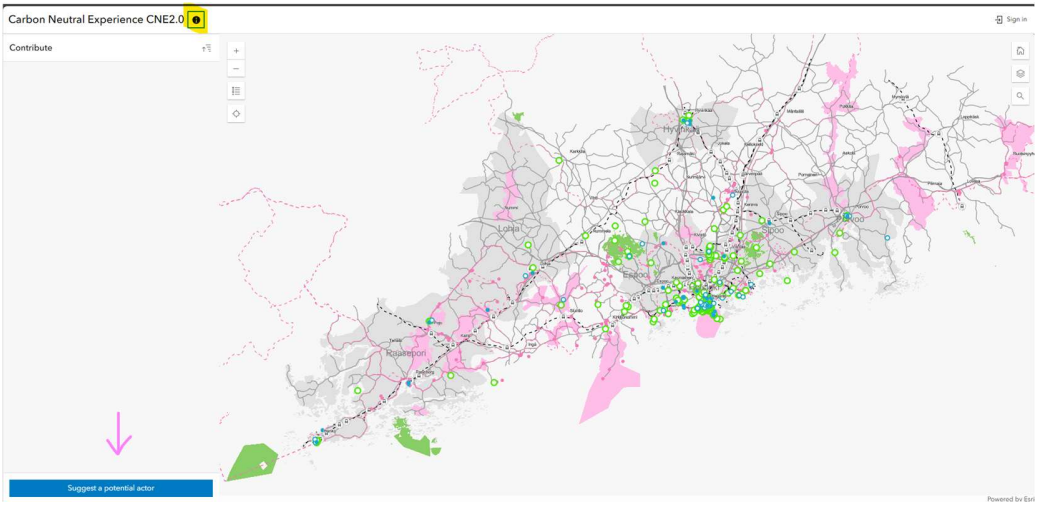


Figure 6: Reporter Instant app - https://novia.maps.arcgis.com/apps/instant/reporter/index.html?appid=47c0284f65324bf7a30d4903f2aae46c

Options

Filtering is an option available in the AGOL map. The platform allows the user to filter layers according to the information on which the user wants to focus such as the company industry, accreditations, or STF status (**Figure** 5, third icon on the right panel).

Reporting is also an option available in the AGOL map. The platform allows the user to contribute to the map by manually adding a potential partner or collaborator to the map (**Figure** 5, the "Contribute" layer in the left panel).

A tutorial video inserted in the final seminar presentation explains how to use those options.

Finally, an app has also been created to ease the contribution process and allowing the user by a simple click to add one's suggestion (**Figure** 6).

Spatial analysis

Some municipalities have companies that have the STF label or on the path but the DMO themselves are not yet such as Inkoo or Kirkkonummi.

Some groups of companies can be delineated and linked to touristic activities and flows: a) city centre such as Helsinki, b) valuable national landscapes such as Nuuksio National Park, Fiskars cultural landscape or Helsinki Seascape, c) transportation hubs such as Helsinki-Vantaa Airport or the South Harbour in Helsinki.

Actor participating in the CNE 2.0 project

The 111 actors participating in the CNE 2.0 project include 91 companies and 20 DMO. The layer is divided in two categories: a) CNE 2.0 destination network with actors being actively committed in the project (1 company and 15 DMO) and b) Participant to workshops with actors being involved in at least one workshop hosted during the project (90 companies and 5 DMO). In terms of STF path status, 37 companies are on the STF path, and 21 companies and 11 DMO have the label (**Table** 8). It is also to note that while the layer only displays Uusimaa-based companies, there were several actors who a) participated in workshops from outside the Uusimaa region e.g., Satakunta, South Ostrobothnia, Ostrobothnia, Lapland and Southwest Finland and, b) were representatives from regional offices but based in Uusimaa e.g., ProAgria, LUKE.

Table 8: Actors participating in the CNE 2.0 project

Municipality	Actors	On the STF path	Sustainable travel Finland	In the destination network	In workshops
Espoo	15	5	6	1	14
Hanko	5	2	2	1	4
Helsinki	42	20	11	3	39
Hyvinkää	4	1	3	1	3
Inkoo	2			1	1
Järvenpää	1				1
Karkkila	1				1
Kauniainen	1		1		1
Lapinjärvi	2				2

Lohja	4	1	1	1	3
Mäntsälä	1				1
Nurmijärvi	1			1	
Porvoo	8	4	1	1	7
Raasepori	10	1	4	2	8
Sipoo	2		1	1	1
Siuntio	2	1		1	1
Tuusula	5		1	1	4
Vantaa	3	2	1	1	2
Vihti	2				2
Total	**111**	**37**	**32**	**16**	**95**

Source: CNE2.0, 2025 and Business Finland, 2025

Company in the STF programme

The companies in the STF programme are *at least* enrolled in the STF programme, through logging in to the STF Hub[18] hence being *on the STF path* (**Table** 5). They also appear on the monthly Visit Finland Sustainable Travel dashboard[5] (**Figure** 1) distributed across the "greater regions of Helsinki" or "Coast and Archipelago". In June 2025, 267 companies were listed including 128 with the STF label and 139 on the path to it (**Table** 9). Of those 267 companies, 58 were also in the CNE 2.0 project (**Table** 8) and 6 were not displayable, resulting in 203 companies being indexed in this layer.

Table 9: Companies in the STF programme

Municipality	On the STF path	STF
Espoo	13	19
Hanko	5	3
Helsinki	81	74
Hyvinkää	5	3
Inkoo		1
Karkkila	1	
Kirkkonummi	1	4
Lohja	3	
Nurmijärvi	3	
Porvoo	5	3
Raasepori	5	3
Sipoo	3	2
Siuntio	2	
Tuusula	2	2
Vantaa	9	12
Vihti	1	2
Total	**139**	**128**

Source: Business Finland, 2025

[18] https://stfhub.visitfinland.com/, 2025

Point of interest

Those 203 actors have been added to the map since the users of soft transportation such as bike have identified them as environmentally friendly and/or responsible actors. This layer has been cleaned to keep relevant companies for tourism (i.e., no gas stations or grocery stores) and sorted by their main industry and needs more cleaning since there are redundancy with other layers.

Municipality in Uusimaa

For municipalities, the name is given in Swedish and Finnish, and the information about their STF status, emissions and footprint is also available. Out of the 26 municipalities in Uusimaa, 17 participated in the project through their DMO, including 9 already with, at least, the STF label (**Table** 10).

Table 10: Municipalities in Uusimaa

DMO	Participant in CNE 2.0	STF	Other accreditations
Askola			
Espoo	Yes	Yes	GD, ST
Hanko	Yes	Yes	GTS, HINKU
Helsinki	Yes	Yes	GD, ST
Hyvinkää	Yes	Yes	HINKU
Inkoo	Yes		HINKU
Järvenpää	Yes		
Karkkila	Yes		
Kauniainen			
Kerava			
Kirkkonummi			HINKU
Lapinjärvi	Yes		
Lohja	Yes	Yes	GD, HINKU
Loviisa			HINKU
Myrskylä			
Mäntsälä			HINKU
Nurmijärvi	Yes		
Pornainen			
Porvoo	Yes	Yes	GD, ST, HINKU
Pukkila			
Raasepori	Yes	Yes	GD, ST, HINKU
Sipoo	Yes	Yes	
Siuntio	Yes		HINKU
Tuusula	Yes		
Vantaa	Yes	Yes	GD, ST, HINKU
Vihti	Yes		
Total	**17**	**9**	

Source: CNE2.0 project, 2025; Business Finland, 2025 and related labels (**Table** 6)
GD: Glasgow Declaration, ST: Sustainable Tourism, GTS: Good Travel Seal

Transportation

Passenger railways and railway stations along them have been added to the map. The railway station layer needs more cleaning since the status of some stations is not up to date.

Buses, as a municipal competence, could not be included on the map but it is to be noted that the main roadways have bus lines. Other alternative modes of transportation such as shared car (e.g., 24Go, Omago), city bikes (e.g., Kaakau) or local public transportation (e.g., Boose) could also be included.

The 47 named bikeways total 8068 km of bicycle roads in Uusimaa.

DISCUSSION

The maps display different spatial patterns that can be lifted depending on the scale the data are analysed. Some statistics linked to the attributes can also be explored.

Municipal scale

Companies' clusters, flows and networks

The maps enable to visualise where like-minded entrepreneurs are, following two spatial patterns: clusters and networks.

Clusters are a group of similar things occurring closely together. As seen, the resulting map showed obvious clusters. Firstly, clusters draw attention on where there is a concentration (i.e., hot spot) or scattering (i.e., cold spot) of companies more or less sustainable. Then, those clusters allow to identify connections between STF companies and touristic activities and subsequent gaps and bottlenecks. Those gaps reflect where the "efforts" should be concentrated since there are still touristic attractions lacking STF-oriented companies such as Nummenjoki and Pusulanjoki farming valley or the Sipoonkorpi National Park.

Clustered patterns facilitate proximal networking. Intra-regional networking is especially important for small and medium-sized entreprises (SMEs) since they offer numerous benefits, including sharing of information, expertise and even resources. It seems simpler to connect and eventually partner to companies already on the path, and easier to contact them to discuss common struggle and interests. Ultimately, these networks allow SMEs to overcome constraints related to size and limited resources.

Finally, between the companies' clusters and along their networks lie the flows of visitors. It would be beneficial to understand where tourists go, from where they come from, how do they decide where to go to then drive tourism communication and strategies to create sustainable routes across hot spots. This part remains yet to be explored.

Municipal disparities

Some municipalities not yet in the STF programme host companies that are in the programme, such as Kirkkonummi that yet already bears the HINKU status. Some municipalities such as Kauniainen and Kerava are located near Helsinki and along developed railway networks and bikeways. In those cases, what is missing, what should be done to boost the DMOs of those municipalities? This part remains yet to be explored.

As displayed on the map, and as expected in terms of clustering logic explained previously, most companies enrolled in the STF programme are concentrated in the Helsinki region (Helsinki, Espoo, Vantaa; **Figure** 7). However, those municipalities are also the most populated. Hence, when those numbers are standardized by the population of the municipality (**Figure** 8), the most active municipalities become Hanko, Raasepori and Siuntio (**Figure** 9), reversing the narrative of "the bigger the better". What should be done for municipalities and DMOs to boost their companies joining the path? This part remains yet to be explored.

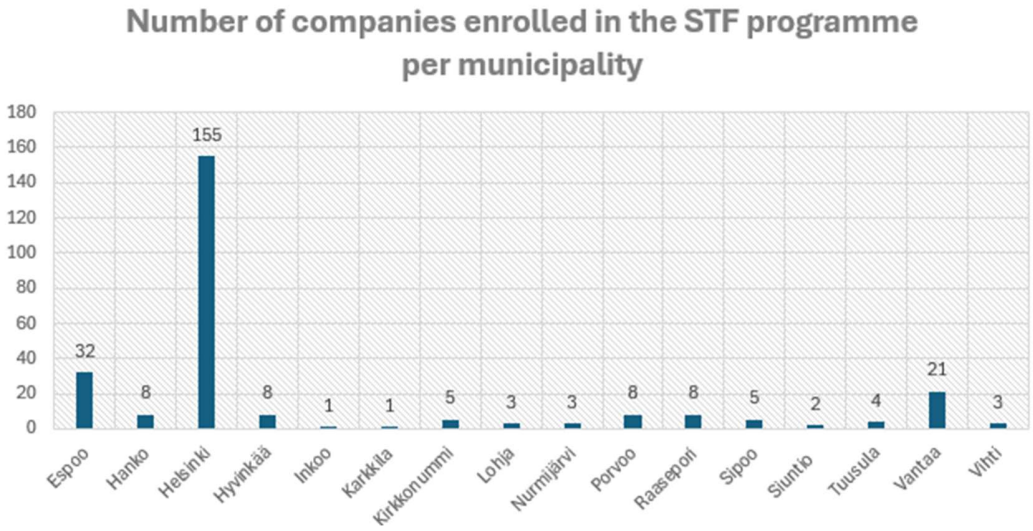


Figure 7: Number of companies enrolled in the STF programme per municipality

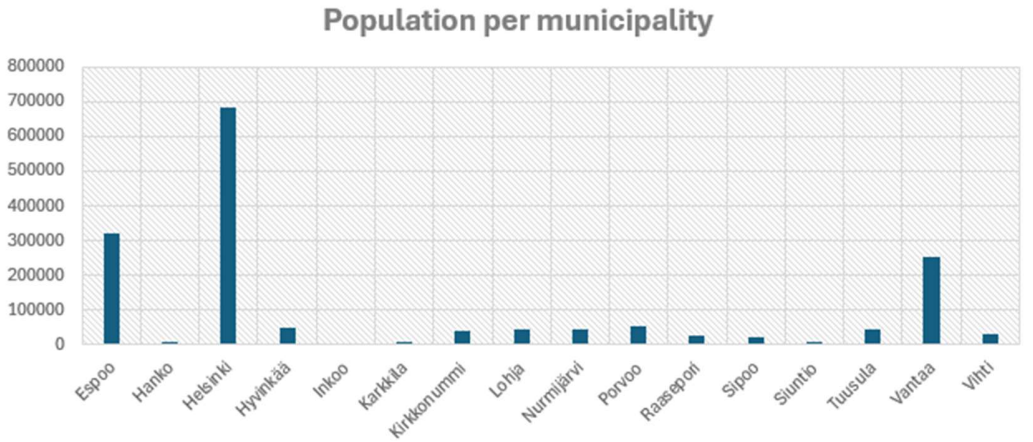


Figure 8: Population per municipality (Statistics Finland, 2025)

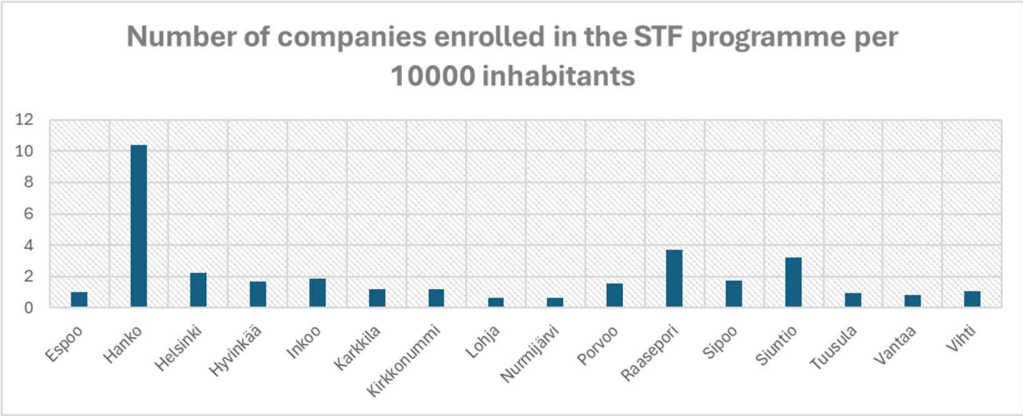


Figure 9: Number of companies enrolled in the STF programme per municipality standardized per inhabitants.

It would also be interesting to check the spatial patterns at a national level. How is Uusimaa doing compared to other regions? Is there possible ways to take advantage of interregional networks and co-develop tourism activities at an ecosystem level instead of compartmented by industries?

Industries scale

While the maps do not show that information at a glance, it was interesting to also look at trends in terms of types of industries on the path (**Figure** 10). What are the industries the most present on the STF programme and why?

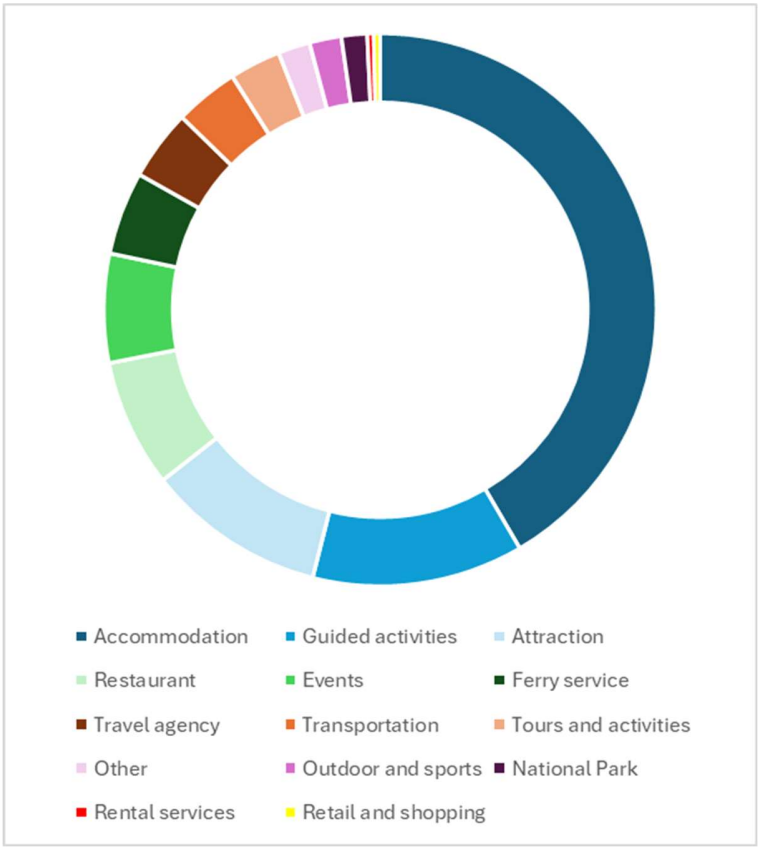


Figure 10: Proportions of industries per type

Accommodation, attraction, and guided activities gathered about 60%.

What would be the reasons those industries are more likely to be on the path to sustainability compared to others? Does it relate to the size of the company? Does it relate to the process itself – is it too cumbersome, too costly, is there any support available from DMOs?

How do their parts matter in the general sustainability and emissions balance? If they are the most represented, are they also the biggest contributors?

Those trends also highlight that there are further opportunities for making *traditional* tourism more sustainable (**Table** 11) and reaching more industries.

Table 11: Opportunities for sustainable tourism

Collaboration	**Opportunities**
Technologies such as virtual or augmented reality	Immersive tourism experiences or digital heritage restoration
Agriculture and local food production	Agritourism, farm stays, food trails, regenerative tourism
Wellness	Wellness retreats, preventative care travel
Education	Language immersion, edutourism
Fashion	Cultural fashion experience for local designer or cultural attire, textile tours
Gaming	Location-based AR games like Pokémon GO-tourism

Individual scale

Finally, the spatial patterns observed could also be related to individuals. Indeed, behind companies and DMOs lie motivated people willing to go through the STF certification process and driven by personal values. During the final seminar, some participants shared that “companies sometimes do not see the added value of the label or are afraid of conducting greenwashing. Companies are bad at telling what they do well although they should, so they can inspire people to do it as well (F. Westermarck, 2025)”. The self-assessment has been an objective tool to use to prove the actions taken and also bring credibility towards customers.

Other benefits of the certification that were pointed out were the capacity to promote changes, to facilitate applications for future projects, to demarcate oneself from the competition and to be more visible notably through Visit Finland platform.

Sensible clients, whether they are tourists or customers, might want to see and pick companies whose values align with theirs at multiple levels.

Final versions, future development and improvement

The maps received a mixed reaction (**Figure** 11), and it is suggested that development and improvement could make them more useable.

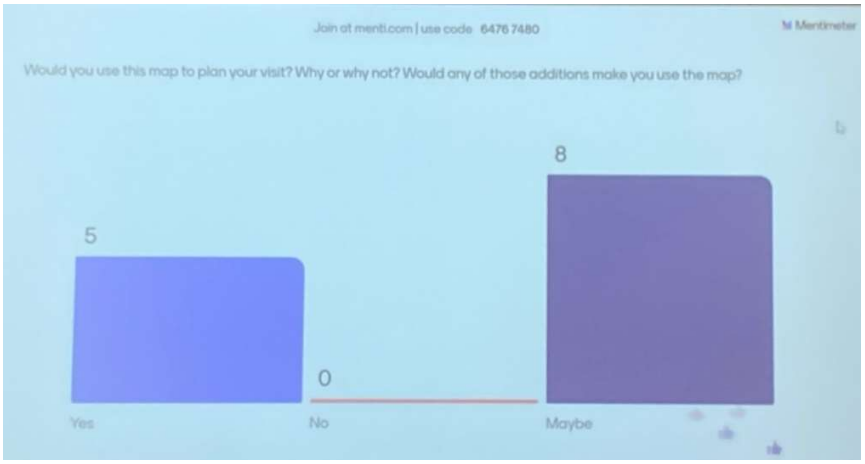


Figure 11: Mentimeter feedback picture from final seminar (AN, June 2025).

The final versions are available for the user:

- to visualize: https://novia-scc.github.io/CNE2/
- to suggest a potential actor to the network : https://novia.maps.arcgis.com/apps/instant/reporter/index.html?appid=47c0284f65324bf7a30d4903f2aae46c using the simple reporting app

Future development ideas for the maps include creating sustainable routes between sustainable companies/DMOs, adding prediction of travel time using sustainable routes, incorporating non-traditional tourism industries with holistic approaches, and allowing artificial intelligence querying and recommendations based on common interests.

Improvements would also be beneficial to keep the maps updated and customization to enhance the general appearance graphics.

CONCLUSION

The CNE 2.0 mapping gives an overview of responsible companies and destinations in Uusimaa. The maps are easy to use and are easily adaptable and editable for the user. They are meant to be used as a tool and targeted for all tourism actors: companies, DMOs, and tourists themselves. The maps show to customers/citizens where sustainable companies and DMOS are, who are those companies' partners, what is their network, what are possible synergies, and how they relate to local communities. But, ultimately, reducing tourism-related emissions requires a combination of individual choices, business practices and systemic changes in transportation infrastructure and policies.