



REPUBLIKA SLOVENIJA  
SLUŽBA VLADE REPUBLIKE SLOVENIJE ZA RAZVOJ  
IN EVROPSKO KOHEZIJSKO POLITIKO



# Norwegian practices of circular economy

7th International Conference on the Development of Industrial Engineering:  
OPPORTUNITIES, POTENTIALS, CHALLENGES

24 – 25 November 2022, Terme Šmarješke Toplice

StudioKroG – Studio of Circular Economy

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Director of Education

Department of Education  
Fønix AS - Norway

28.11.2022

StudioKroG – Studio of Circular Economy

## Working together for a **green,** **competitive** and **inclusive** Europe.

The »Studio of Circular Economy« benefits from a EUR 776.975,00 EUR grant from Norway. The aim of the project is to increase the understanding of the circular economy in the case of reuse and eco-design of waste and industrial symbiosis in establishing a “circular economy” studio:

### GENERAL GOAL OF THE PROJECT:

- Reduce pressure on virgin materials needs and GHG emissions by increasing reuse and waste design.

### INNOVATIVE APPROACH:

- To establish a new “competitiveness” in society: how to live and create with as little consumption of resources as possible.

Project duration: 1.5.2022 – 30.4.2024



[www.norwaygrants.si](http://www.norwaygrants.si) | [www.eeagrants.org](http://www.eeagrants.org) | [www.bistra.si/studiokrog](http://www.bistra.si/studiokrog)



# TOP 10 GREENEST COUNTRIES

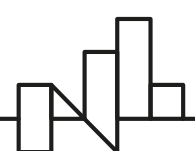


Share if you think every country  
can be a green country.

Source: Global Green Economy Index, <http://bit.ly/1GWY7tt>

@CLIMATEREALITY

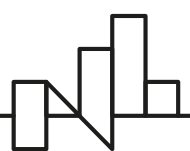
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## The political level

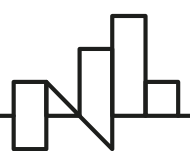
- Norway is a leader in the global transition towards an inclusive green economy
- There is political consensus on a green industrial boost, where Norway will create jobs, increase exports and contribute to cutting greenhouse gas emissions all over the country
- Norway will become a low-emission country by 2050. This is what we call the green shift





## The industrial level

- Norwegian industry is a leader in the global transition towards an inclusive green economy
- By 2030, Norwegian companies has promised to cut 50% percent of current greenhouse gas emissions
- This will be obtained with focus on more commercial use of sea wind, carbon capture, circular economy, hydrogen energy, zero emission society, smart health and welfare etc.





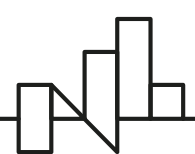
## The consumer level

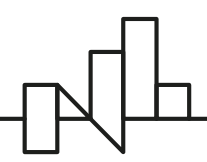
- 2/3 of all new cars sold in Norway are electrical cars
- Strong demand for a more green lifestyle with alternative energy, recycling, green public transportation, “smart houses”, **sustainable food** etc.
- High demands and growth in sales of second-hand cloths, electronics, furniture and all kind of households items



# Study visit to Norway

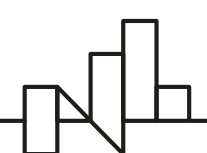
- The project consortium studioKroG arranged a study visit to Sandefjord, Norway in September 2022
- The theme for the study visit was “Climate Change Mitigation and Adaption”
- The trip included 30 representatives from the project partners – including invited experts from municipalities, ministry and small construction companies
- During the five day study visit we visited a number of enterprises and locations dedicated to sustainability and green production solutions in southern Norway





# Sandefjord

- Sandefjord has a separate climate budget for 2022 - 2025
- This is the first climate budget that is fully integrated in the action plan and budget of the municipality
- Greenhouse gas emissions in the municipality Sandefjord will be reduced by 40% in 2030 compared to 1990
- The municipality also decided to strengthen the goal at the revision of the climate and energy plan to 55% reduction of all emissions
- Municipality of Sandefjord has promised to be climate neutral by the year 2050!



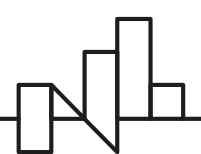


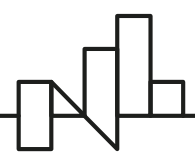
# Transportation



# Color Hybrid

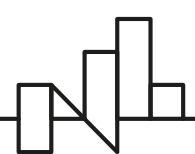
- Sandefjord is located close to the sea and the connection to water has always been important for the city
- The city has daily ferry connections with Strömstad in Sweden
- Color Hybrid is the world biggest hybrid ferry and can carry 2.000 passengers and 500 cars
- The batteries can be charged from shore and the ship also has a heat recovery system where, among other things, heat from the exhaust is stored in water tanks on board





# Electric cars

- In 2021 65% of all new cars registered in Norway had an electric engine
- Altogether, 20% of all passenger cars in Norway are now electric cars
- The numbers are increasing rapidly, and the last figures show that 2/3 of all new cars sold in Norway are electrical cars
- This is partly due to favourable tax rules for electric cars, but also because the local and national government has adapted easy charging solutions and local driving and parking regulations in favor of electric cars



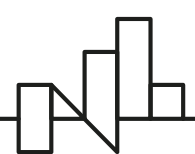


# Housing



# Nature Compact Living

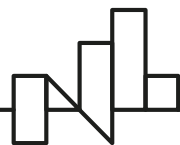
- Nature Compact Living is a wholly owned Norwegian company established in 2018
- Their business idea is to offer both offices and different type of holiday homes based on used and new containers
- The holiday homes offer unique living experience, in direct contact with nature, combined with good comfort and high quality
- Their accommodation units are designed to be placed anywhere with minimal groundwork and are easy to put in place. In addition, they are removable even if they appear permanent

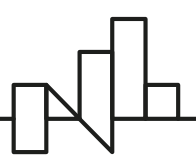










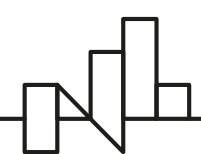


# Reuse and innovation



# Fretext

- Fretext is a social enterprise established in 1905 by The Salvation Army
- Fretext is a household name in Norway well known for its second-hand shops across the country
- Fretext is the largest collector of used clothes and textiles in Norway, with over 3.500 collection boxes especially designed for this purpose
- Fretext also have two sorting facilities for receiving and handling all clothes and textiles in Norway. Each year they collect over 15.000 tons of clothes and textiles
- The clothes / textiles they cannot make use of in their businesses are exported and re-used in other countries or re-made into clothes or products.





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SLIPP DIN KOLLEKSJON  
HOS FRETEX

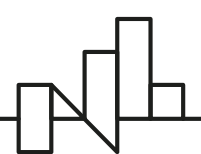
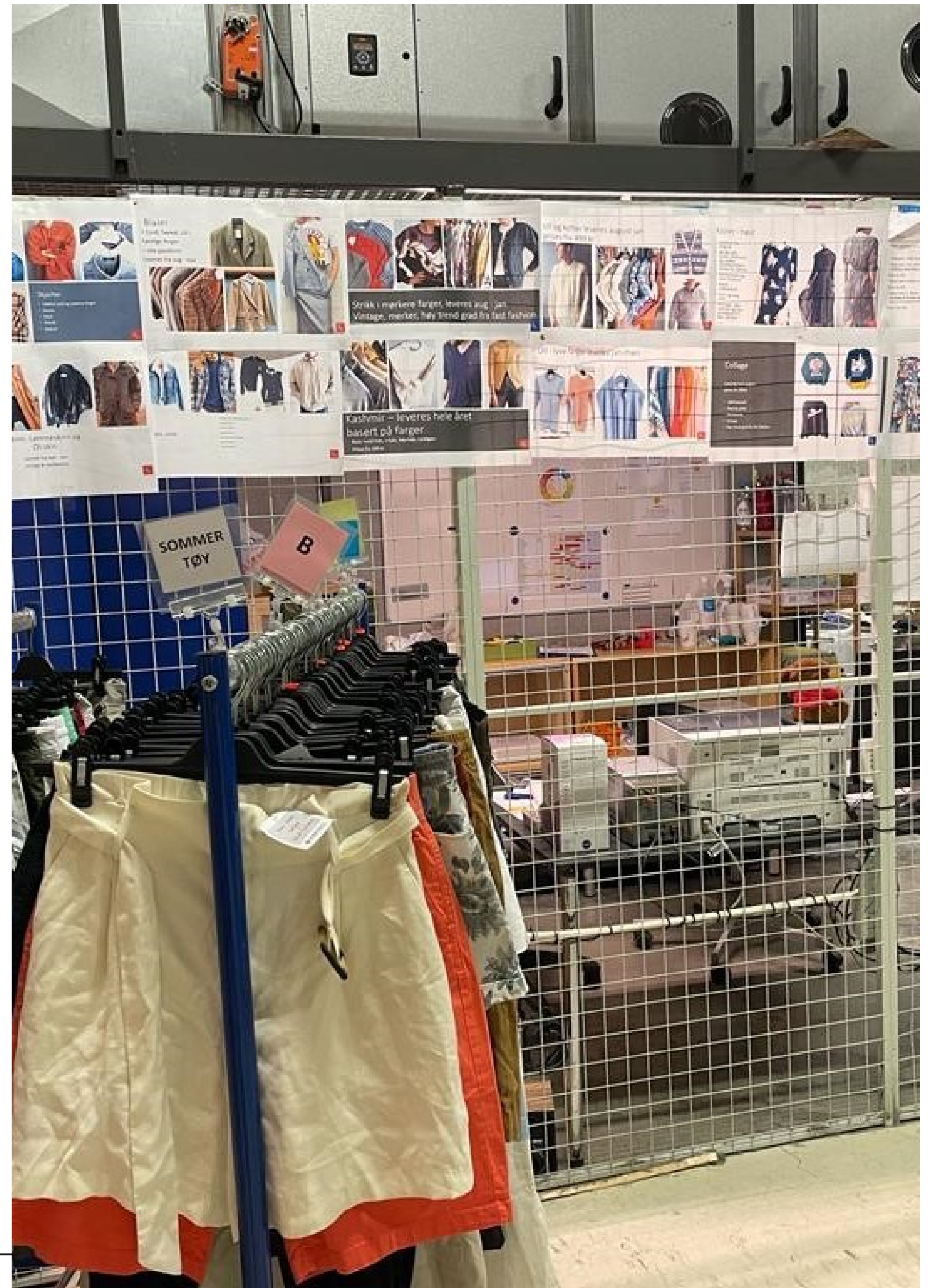


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# Vollebekk Factory

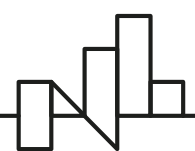
- Vollebekk in an incubator of 20 social enterprises in the field of green production located in Oslo, Norway
- Beside different stores, they develop new solutions in reuse, repair and green production
- By sharing knowledge and activities they connect residents, entrepreneurs, and established companies and in this way create bigger interest for circular economy in Norway
- Vollebekk Factory is a concept that uses unused premises to stimulate sustainable urban development where they highlight, support and promote circular economy and social entrepreneurship



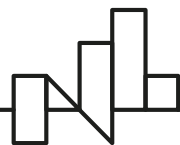
Oppdragsgivere  
Aspollin Ramm  
OBCOS  
Bydel Bjørke  
Pådriv

Evaluering & rapport  
Urgent Agency –  
Skrevet av Christian Pagh (ansvarlig)  
og Alf Jørgen Schnell  
Grafisk design av Cecilie Knudsen

Oslo høsten 2020

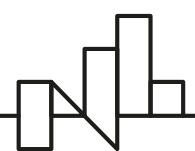






# Gruten AS

- One of the social enterprises in Vollebekk is Gruten AS
- The word «gruten» is coffee grounds – the waste from making coffee
- Only in Oslo we produce 10 tons of coffee ground every day!
- Gruten is an innovative and future-oriented business that recycles the city's coffee waste and produce mushrooms on a large industrial scale
- *“From Oslo's black gold, we create exciting products and contribute to increased knowledge and awareness related to the wonderful coffee grounds.”*





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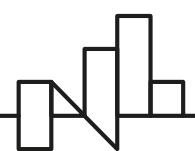
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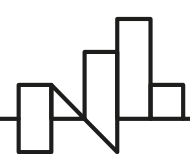
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# Release mobile company

- Release is Norway's first - and only - mobile company that only sells used mobiles. They fight for used cell phones to become our natural first choice
- Their goal is to make it easy and safe to choose used. They want to extend the life of a mobile, which in turn leads to reduced waste of electronics and lower consumption of endangered minerals and elements
- Each cell phone goes through significant tests by experienced technicians, to secure the quality before they reach the customers
- Release think it is important that we extend the time we keep the mobile we already have. Therefore, mobile repair is one of their most important services

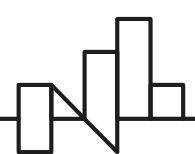


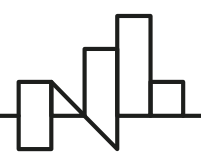


# Gokstad Academy

- Gokstad Akademiet is a new and modern school on pre-university level in Sandefjord
- The school – with 300 students - has been 100% equipped with second-hand furniture with the help of an expert, specialized in furnishing on the principle of reuse
- *"I'm very committed to the environment and recycling, so this project is fantastic for showcasing that you can decorate with used furniture without it costing the world"*

Lisa Christoffersen – reuse consultant





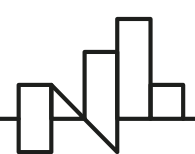
# Redesign and innovation





# Reuse and redesign

- Norway has for many years been one of the worst countries in the world when we talk about the «use and discard» mentality
- But the mentality is changing rapidly and the general interest in reuse and redesign is growing
- According to a survey from 2020 80% of Norwegian say they want to buy used before new
- The number of thrift stores focusing on reuse and redesign are growing all over Norway
- According to a new global report, the second-hand market will take over from fast fashion by 2030 – and Norway can be one of the leading countries in this development



**FEIRING AV PRINSESSE INGRID  
ALEXANDRAS 18-ÅRSDAG**



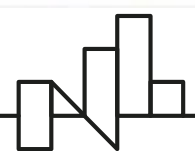
Tre generasjoner med gjenbruk:

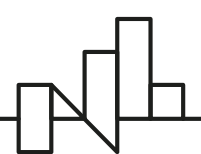
**– Treffer midt i  
tidsånden**

**The celebration of Princess  
Ingrid Alexandras 18 years  
birthday**

**Three generations of reuse:**

**- Hit right in the  
spirit of the  
times**







ALT BLUE KRAFTS BY BEYDELLY

12000



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# Thank you!

STUDIO OF CIRCULAR ECONOMY - studioKroG

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Instagram: studioKroG

Tik Tok: @studiokrog

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