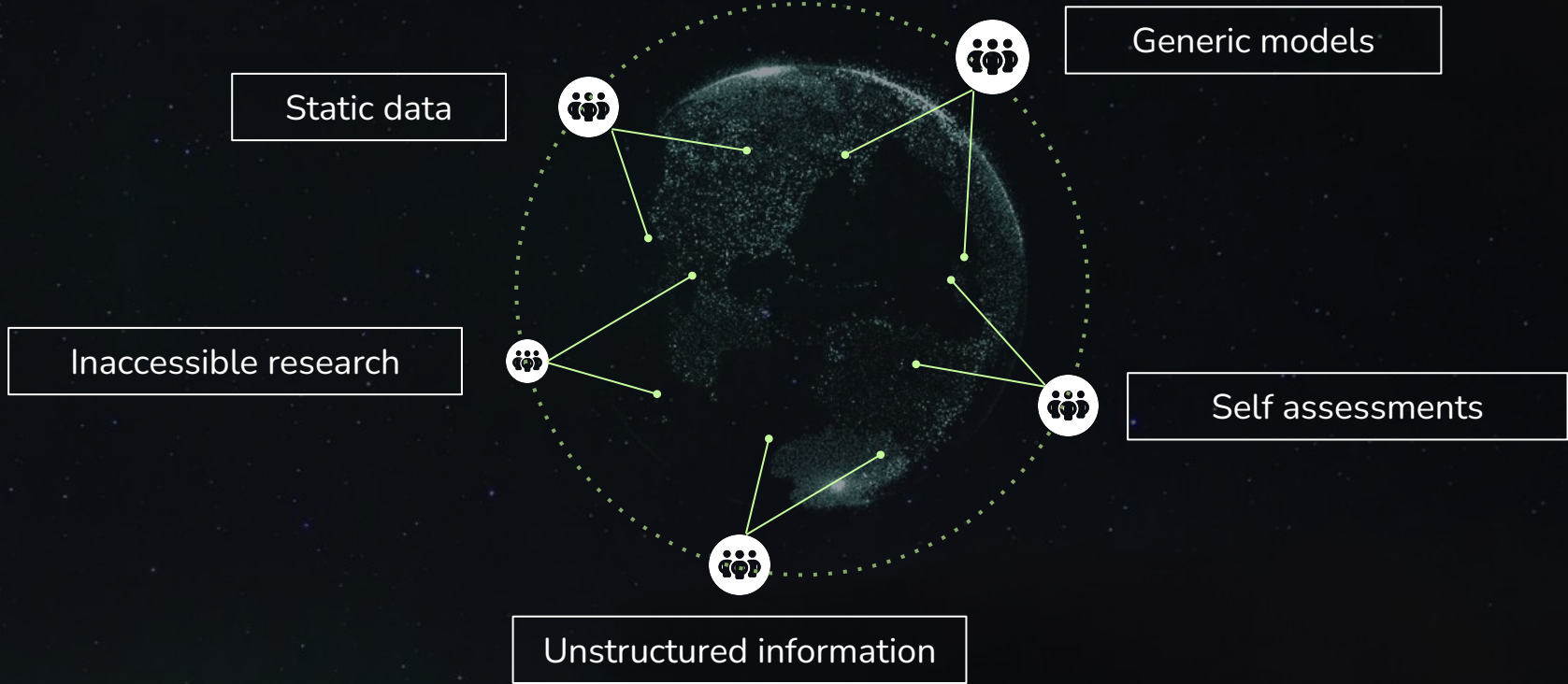




# TERRAVERA

FOUNDATION

HOW SUSTAINABLE IS IT, **REALLY?**



Businesses and organisations are making decisions every day.  
How do we know if they are **sustainable**?



\*Objective

\*Specific

\*Dynamic

\*Shareable

\*Structured

**TERRAVERA** empowers sustainable decisions by connecting and re-using all existing knowledge\* about sustainability in a digital modelling platform

Businesses and organisations

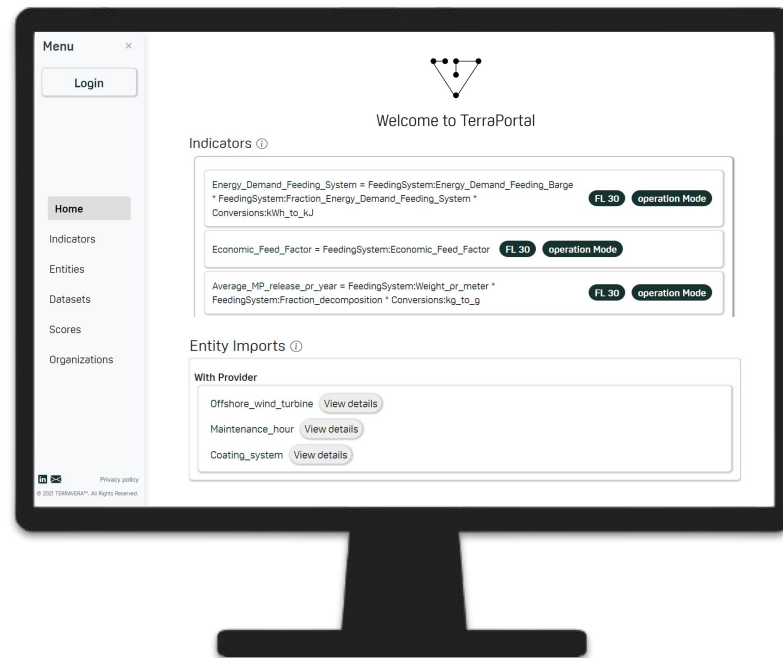
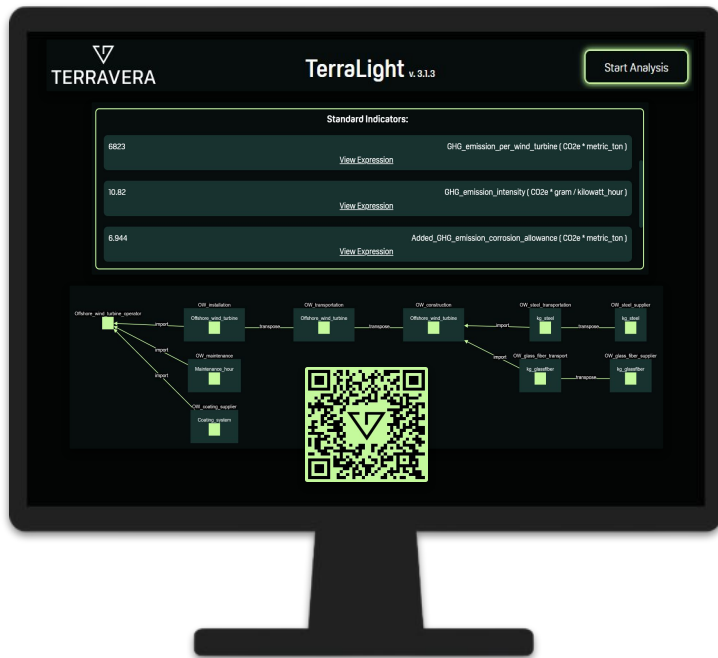
TerraLight  
Analytics application



Builds digital decision tools to make verified ESG data dynamic, context specific, structured and shareable

Research institutions

TerraPortal  
Model building application



# Selected Terravera partners and their sustainability challenges



Green premium - we **verify** reduced CO2 emissions from Jotun's products



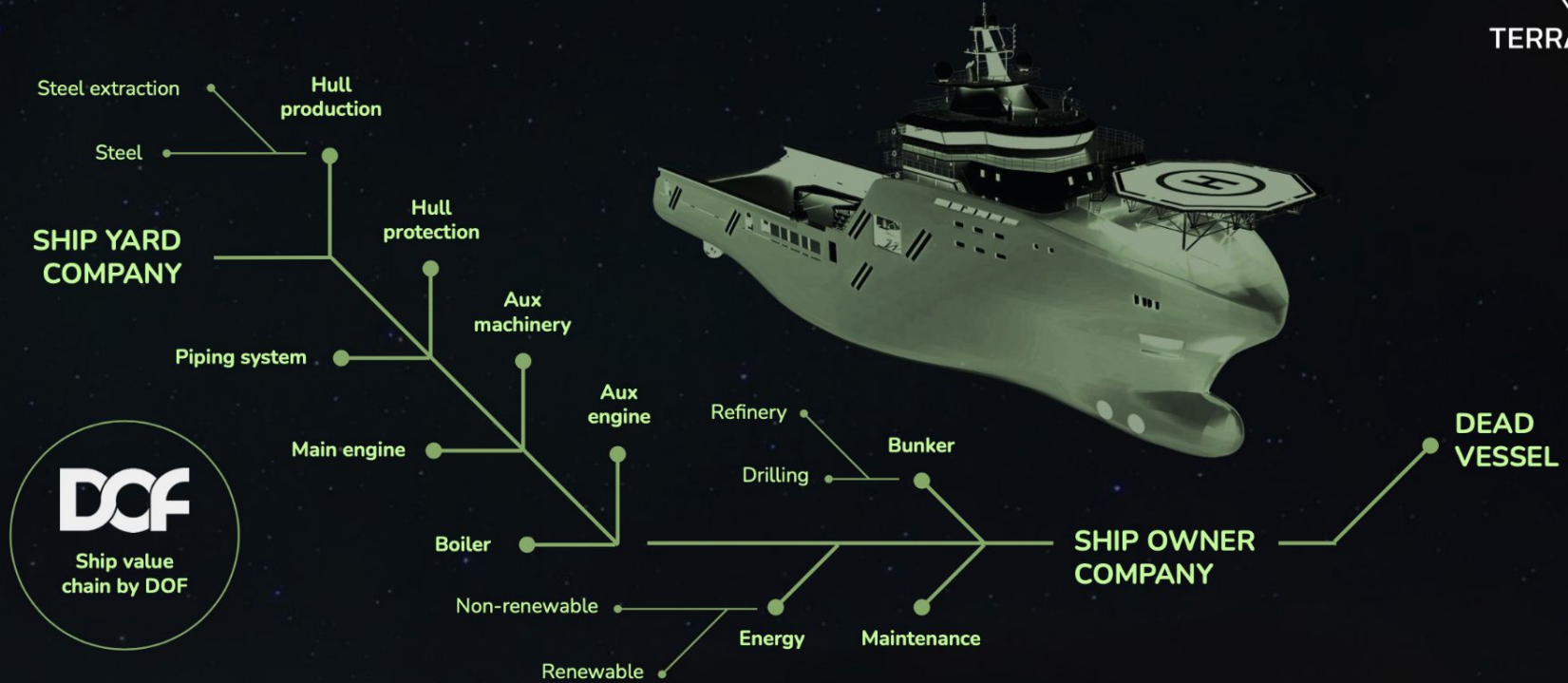
Transition strategies - we **quantify** Norwegian's CO2 emissions per passenger



Better decisions - we **compare** environmental footprint from different technologies

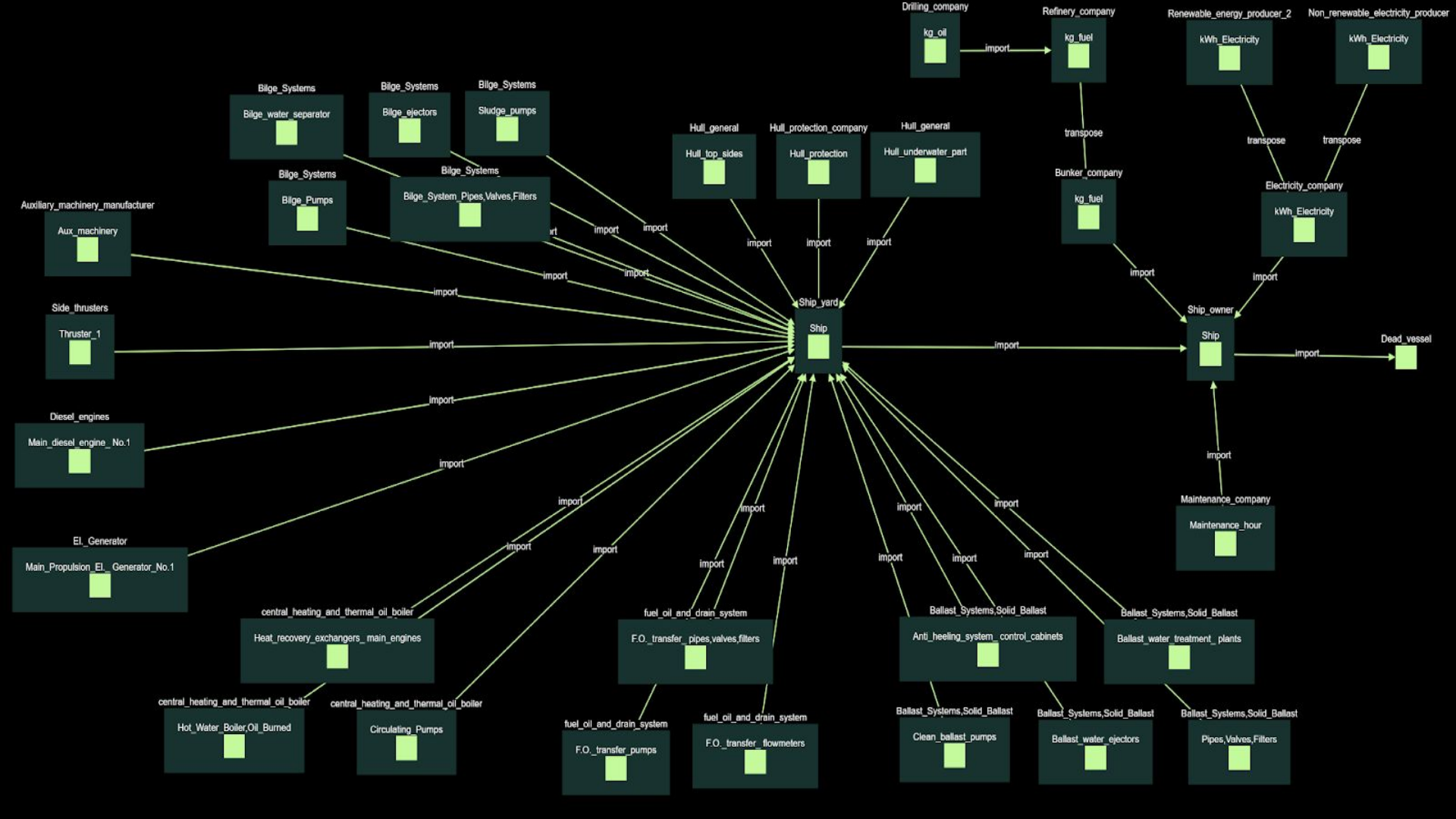


Better planning - we **deliver data** for reporting and reduced CO2 emissions in operations



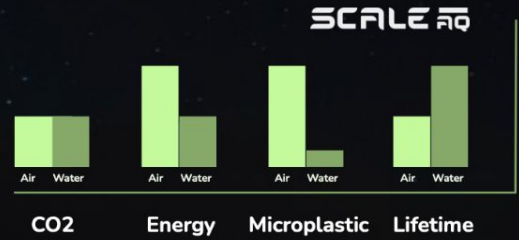
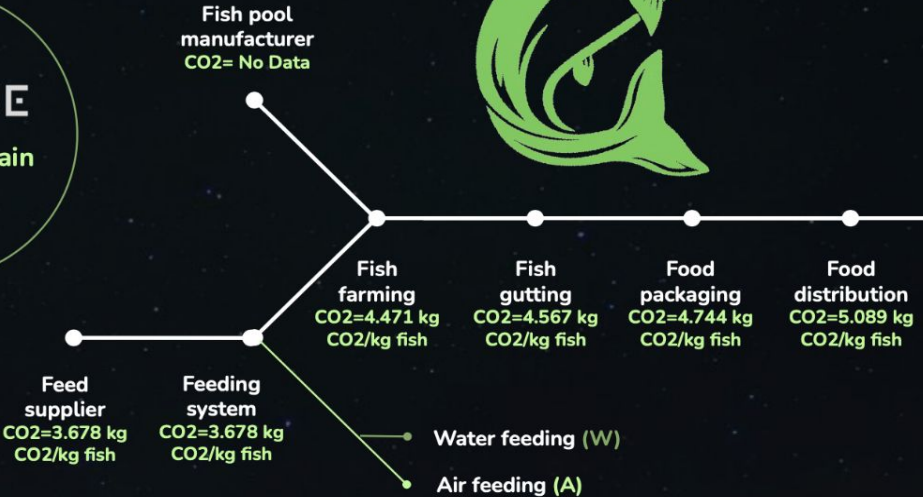
POTENTIAL INDICATORS FOR EVERY STAGE





# Selected value chain project - insights for better investment decisions

**FORMUE**  
CO2 Value Chain  
by Formue

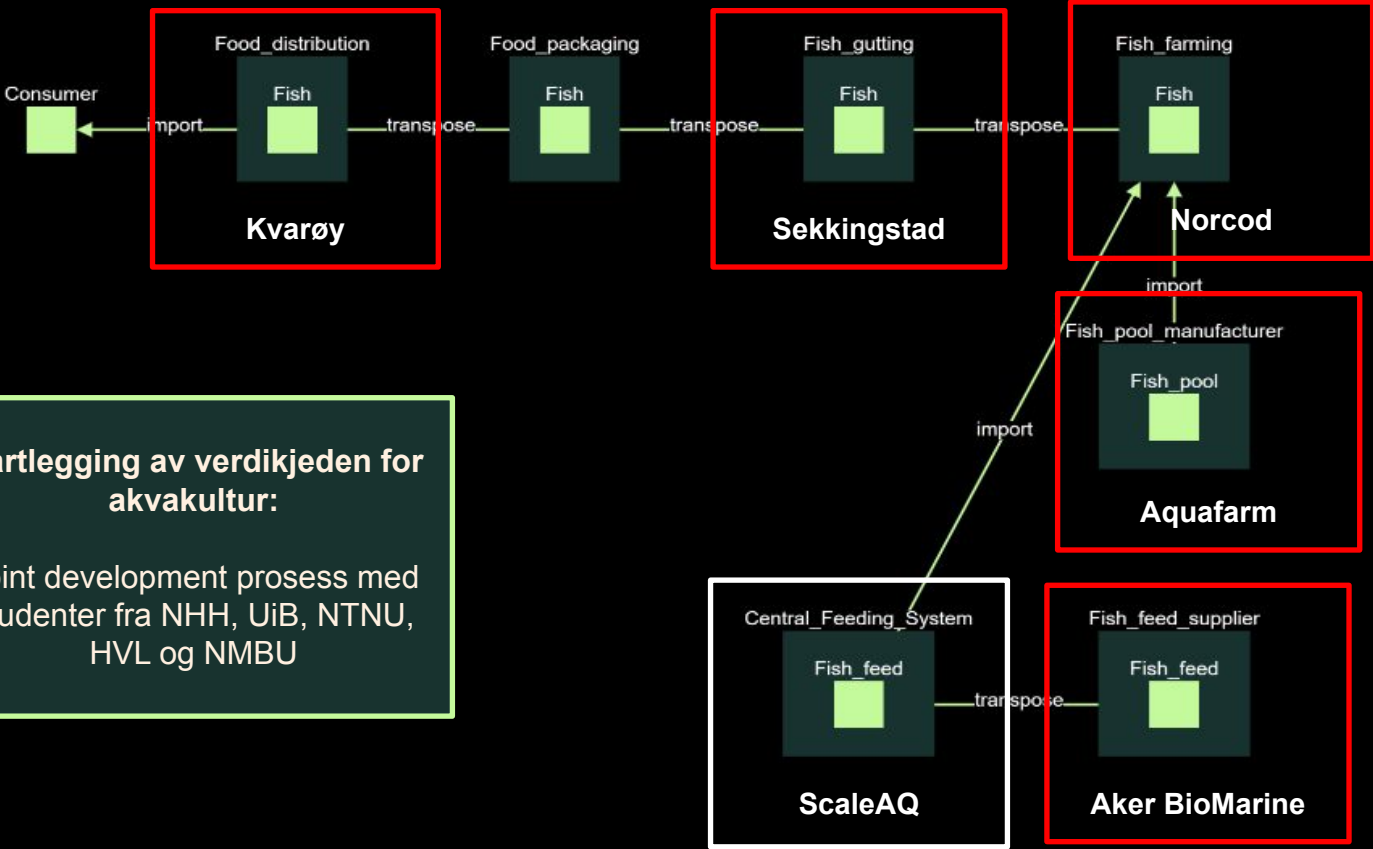


## POTENTIAL INDICATORS FOR EVERY STAGE

- Carbon emissions
- Water use
- Electricity use
- Pollution
- Toxicity
- Biodiversity
- Human rights
- Labour health & safety



# Selected value chain project - insights for better investment decisions



**Kartlegging av verdikjeden for akvakultur:**

Joint development prosess med studenter fra NHH, UiB, NTNU, HVL og NMBU

## Performance

Indicators Scores

ScaleAQ ønsket å sammenligne luftføring og vannføring. Forskere og studenter ved NTNU utviklet indikatorer som ble lagt inn i Terravera sin plattform.

ScaleAQ brukte applikasjonen TerraLight for å presentere sammenligningen på verdens største akvakultur-teknologi-messe, AquaNor.

Arbeidet har vekket stor interesse i bransjen, og gitt ScaleAQ mye positiv oppmerksomhet. Det har vært et viktig steg for å rette søkelyset mot viktigheten av å ha gode verktøy for bærekraftig beslutningstaking - både i drift, prosjekter og strategiarbeid.

Air feeding		Water feeding
337 <small>More information</small>	Energy Demand Feeding System <small>[ kilojoule / kilogram ]</small>	168
1.34 <small>More information</small>	Economic Feed Factor	
88.0 <small>More information</small>	Microplastics <small>[ gram / meter ]</small>	8.80
1.5-2 years <small>More information</small>	Lifetime	3-4 years
2281 <small>More information</small>	Energy Demand Per Meter <small>[ kilojoule / meter ]</small>	2281
45.5 <small>More information</small>	Percentage Recycled <small>[ % ]</small>	45.5

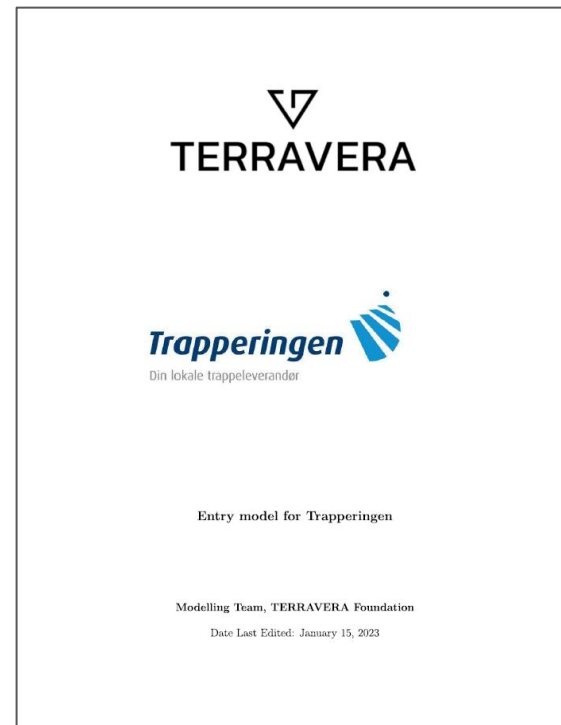


*Trapperingen* 

## Overordnet mål:

### Innhold i dokumentet som er utformet:

- Introduction
- Background
- Model
  - Model entities
  - Relevant sustainability factors
  - Production of wood
  - Transportation
  - Production of staircase
- Dataset
  - Limitations



- ❑ Gjennomført oversiktsstudie over verdikjeden til en tretrapp og hvilke faktorer som påvirker bærekraftsindikatorerne (CO2-utslipp og arealforbruk)
- ❑ Sett på fordeler og ulemper ved bruk av tre i trapper, og sammenlignet med andre materialer som brukes i dag
- ❑ Utforsket mulighetene for bruk av tretrapper i større bygninger, og potensiale for å skape en sirkulær verdikjede
- ❑ Implementert en enkel referansemodell i Terravera-plattformen
- ❑ Utformet et datasett og kjørt en analyse av modellen i analyseapplikasjonen Terralight



- ❑ Milestone 1: Expansion of the current entry-model by inclusion of wholesaler, wood refinery(plank producer) and transport entities. Specifying the current wood dataset to oak and pine.
- ❑ Milestone 2: Concretize model through further analysis of the value chain and information gathering. Delivery in form of a document.
- ❑ Milestone 3 and 4: Et grovt estimat over klimapåvirkningen til Trappingen sine trappemodeller. Mindre komponenter slik som skruer og bolter forventes ikke å bli modellert i denne leveransen, fokuset skal være på å få implementert en modell som tar hensyn til klimapåvirkningen for de største bestanddelene til trappene samt overflatebehandling.





Erik F. Færevaaq  
Technology

*Msc NTNU. Erik has background from technology companies such as Chipcon, Texas Instruments and Energy Micro.*

*In 2013 Erik founded Disruptive Technologies, a global IoT company providing the world's smallest IoT sensor.*



Bjørn K. Haugland  
Sustainability

*Msc NTNU and former Chief Sustainability Officer for DNV-GL, Bjørn is currently CEO for SKIFT, a membership organisation for business-leaders driving the green shift.*

*Bjørn also sits on the board of WWF, UiB, PRIO, Center for Responsible Leadership, Kezzler and Zeabuz.*



Paal R. Larsen  
Business

*MBA NHH. Paal has been instrumental in building Software- as-a-Service company Meltwater to become the #1 online Media Intelligence company in the world.*

*Paal is Executive Director Meltwater, part of the global leadership team and responsible for the EMEA business.*

# TERRAVERA Foundation - Advisory Board



**Atle Christiansen**  
(PhD), Chairman Of The Board at  
Cicero Shades of Green AS



**Martin Skancke**  
Chair, Principles for  
Responsible Investment



**Bent Erik Bakken**  
(PhD) President at Sustainability  
Dynamics



**Hanne Thornam**  
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(Assoc Prof.) Head of Department of  
Finance at NHH



**Thina Saltvedt**  
(Phd) Chief Analyst, Sustainable  
Finance, Nordea



**Bjørn Kjærland Haugland**  
CEO Skift Business Climate Leaders.



**Kristine Falkgård**  
Head of Sustainability - Fremtind



**Asgeir J. Sørensen**  
(Prof.) Department of Marine Tech  
and Director Amos., NTNU





NHH



Norwegian University  
of Life Sciences



Western Norway  
University of  
Applied Sciences

Empowering sustainable decisions



Norwegian University  
of Life Sciences



Norwegian University of  
Science and Technology



Høgskulen  
på Vestlandet

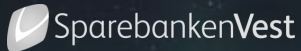


UNIVERSITETET I BERGEN

NHH



TERRAVERA  
FOUNDATION



M MESTERGRUPPEN



FORMUE PIPELIFE



Technology  
platform

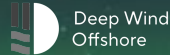


OPUS

HALIBUT SCALE



AQUALOOP



knowit



Norconsult  
Informasjonssystemer



DNB

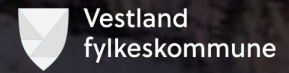


SOEWA  
Investinor



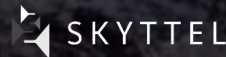
AKER BIOMARINE

easee



SVALINN

AARBAKKE





**Thank you!**  
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**TERRAVERA**

[info@terravera.world](mailto:info@terravera.world)