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Sustainability is more than a number: Enabling co-existence and multi-use offshore

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Photo: Norges Fiskarlaget



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Sustainability = Business as unusual



Definitions

Sustainability
Co-existence
Multi-use



SDG Wizard

Bringing the SDGs into
offshore wind



21st century economics

Flourishing triple-layer
business models

 HIGH
FIVE
FRIDAY

Grand finale

Sourcing universal
values for offshore
Business as unusual



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What is Sustainability?

a holistic concept that considers the interconnectedness of environmental, social, and economic systems



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What is Offshore Co-existence?

It involves mutual respect, tolerance, and acceptance of differences, allowing for the peaceful co-habitation of offshore sectors and actors within a shared space, community, or society

$$1+1 \leq 2$$



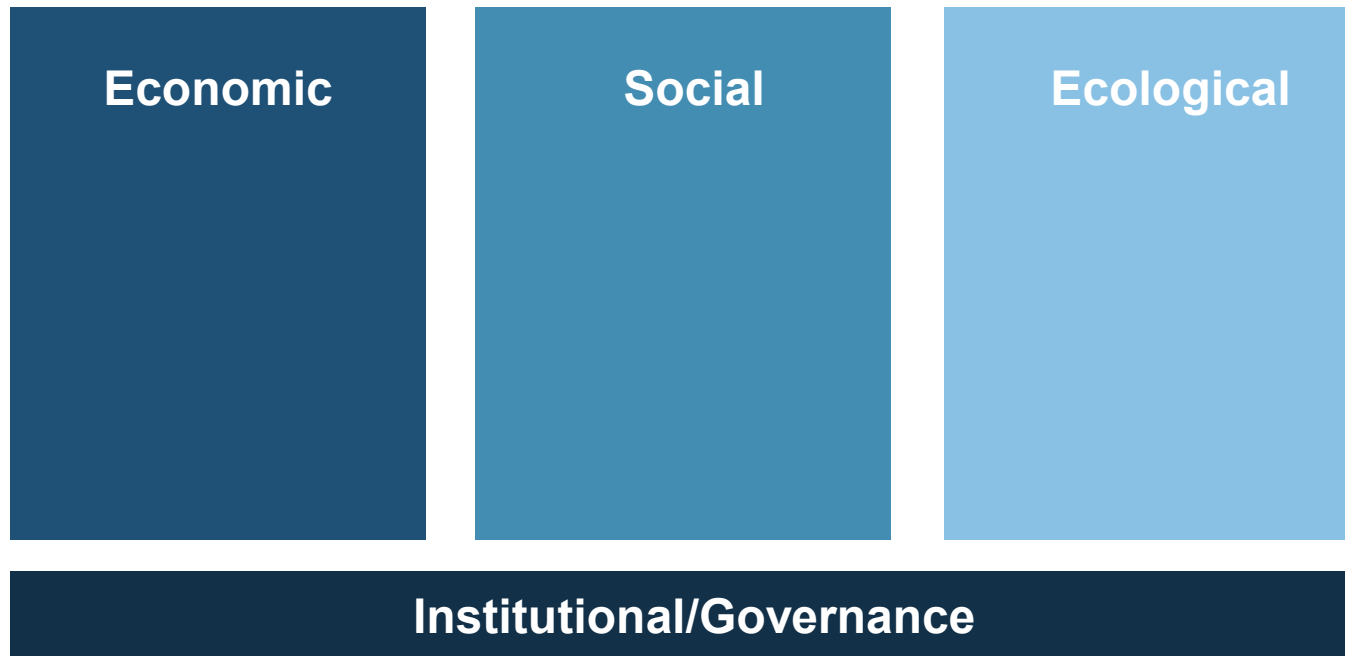
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What is Offshore Multi-use?

the practice of combining various activities and functions within a specific offshore area. Instead of allocating separate areas for individual uses, such as fishing, shipping, energy production, or conservation, multi-use aims to optimize the utilization of marine spaces by allowing multiple activities to co-exist in a coordinated and sustainable manner.

$$1+1+1 \geq 3$$

The 3 pillars of sustainability



Related concepts, initiatives and agendas

UN Sustainable Development Goals

- Circular Economy
- European Green Deal
- EU Taxonomy
- Social Equity and Justice
- Sustainable Finance Directive (Article 9&10)
- Renewable Energy Transition/Directive
- Farm to Fork
- Corporate Social Responsibility
- EU Emission Trading System
- Fair Trade
- EU Missions
- Diversity, Equity and Inclusion (DEI)
- Biodiversity Strategy 2030
- Triple Bottom Line





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Our grand normative framework:

The United Nations Sustainable Development Goals (2016–2030)



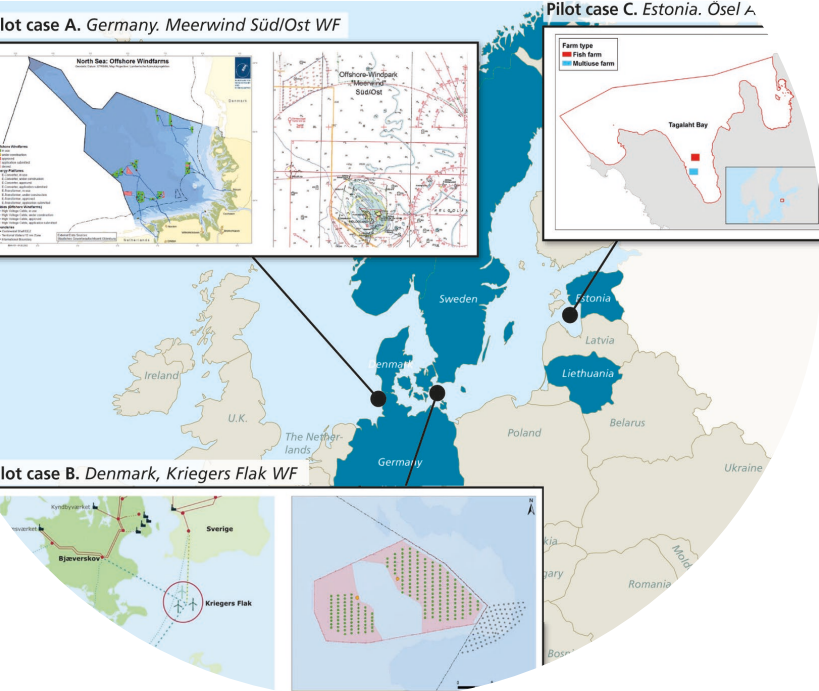


Demonstrating Open Ocean Multi-Use in the North Sea and Baltic Sea regions – OLAMUR

(Offshore Low-Trophic Aquaculture in Multi-Use Scenario Realisation)



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Large EU project on kelp and mussel farming within offshore wind farms

Ambition

OLAMUR will address and solve key bottlenecks hampering the development of commercially viable and sustainable offshore low-trophic aquaculture (LTA) in wind farms or fish farms and thereby enhancing a **sustainable LTA production in the EU.**

olamur@hi.no
<https://olamur.e>



SCAN HERE

OLAMUR brings together 25 partners from 8 different countries across Europe (Germany, Norway, Denmark, Estonia, Italy, Lithuania, Belgium and Sweden). The consortium consists of 9 SMEs, 5 Universities, 5 Research and Technology Institutes, 3 Non-Government Organisations and 3 industry partners, encompassing a wide range of skills, including environmental science and policy, meteo, robotics, wind technology and aquaculture farms.



Photos: Vattenfall
 IMR (Erling Svensen)
 WindMW, BSH



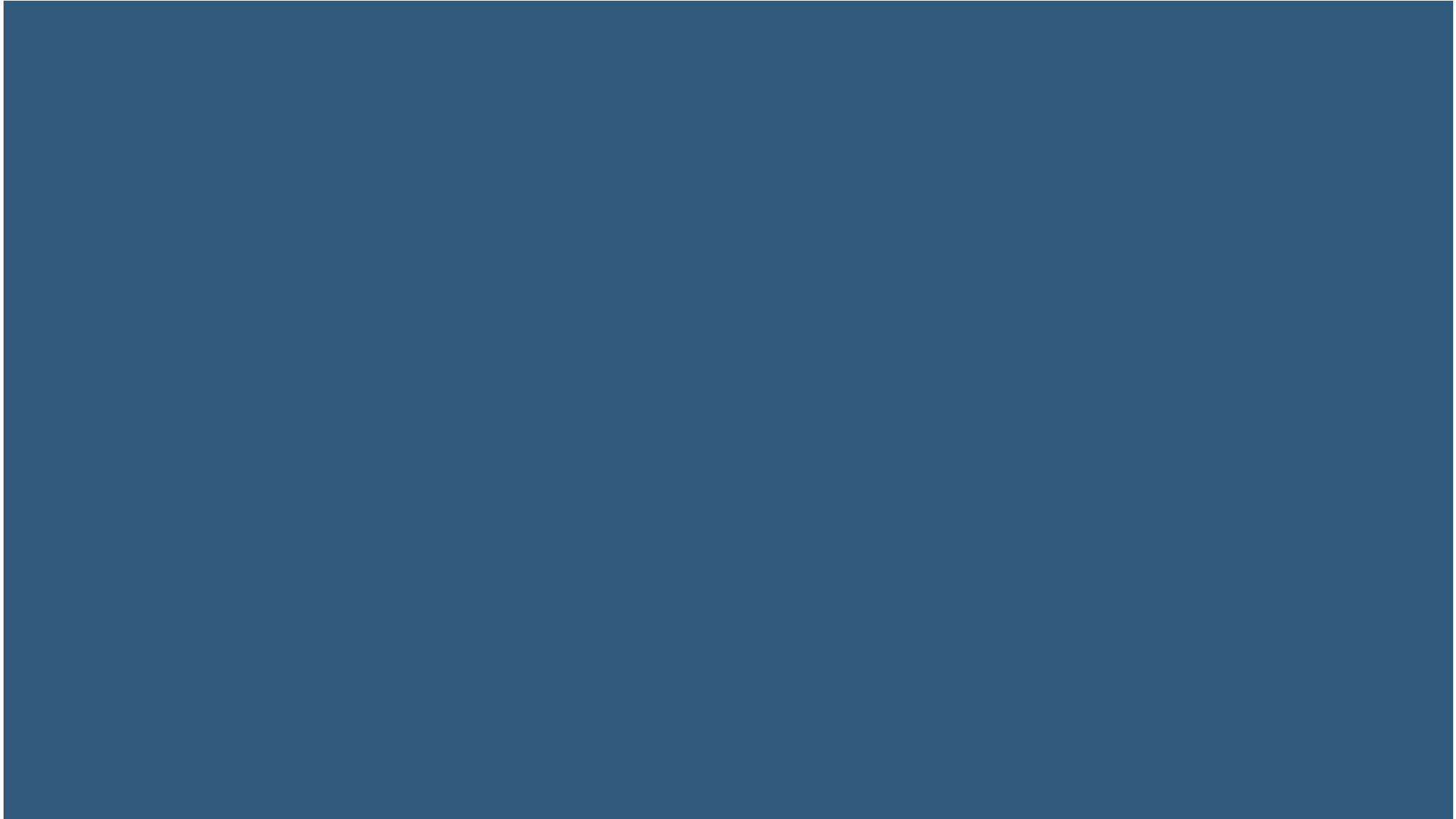
Multi-use

Demonstration site

Danish Kriegers Flak Offshore Wind Park

- Largest windfarm in Scandinavia
- 604 Mw (powers 600.000 households)
- 72 turbines
- Turbine height: 188 m
- In function since 2021
- Owned and run by Vattenfall





Marie Maar, *et al* 2023

OLAMUR Task 7.1: SDG Target Relevance-Tracing: Kriegers Flak Multi-Use Demo

October 2023, Roskilde, Denmark



Seav

A

Food systems analyst, Copenhagen

Museum curator, Kattegat Center

tenfall



17 SUSTAINABLE
DEVELOPMENT
GOALS

169 TARGETS

247 INDICATORS



A Doughnut for the Anthropocene: humanity's compass in the 21st century

Kate Raworth

Environmental Change Institute, Oxford University, Oxford

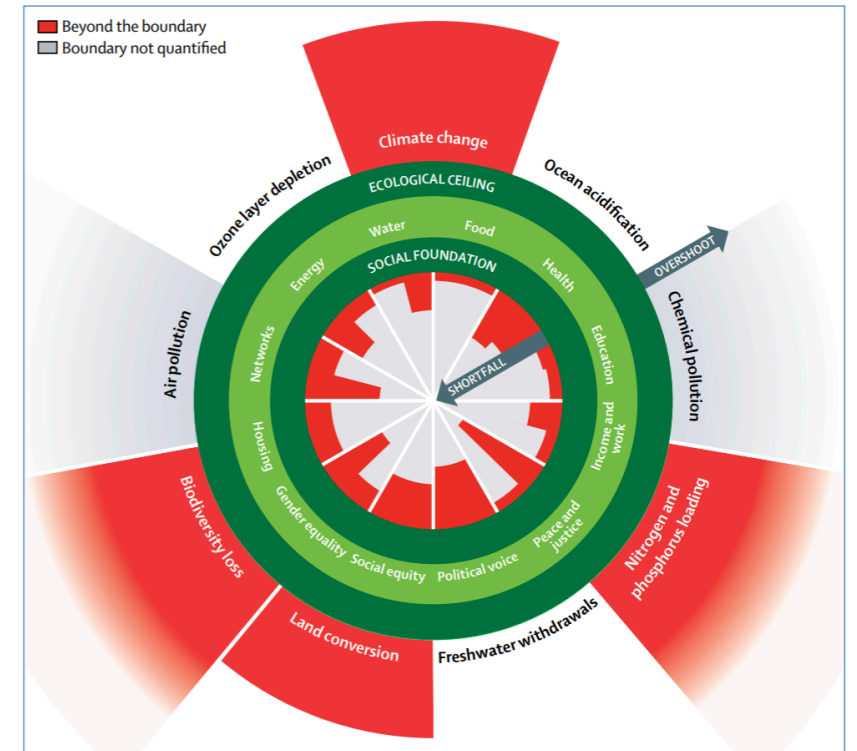


Figure: Shortfalls and overshoot in the Doughnut
 Dark green circles show the social foundation and ecological ceiling, encompassing a safe and just space for humanity. Red wedges show shortfalls in the social foundation or overshoot of the ecological ceiling. The extent of pressure on planetary boundaries that are not currently being overshoot is not shown here (see appendix for all graphics).

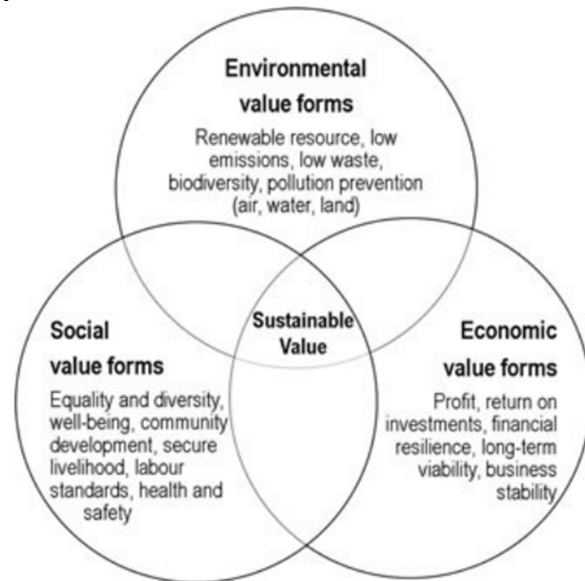
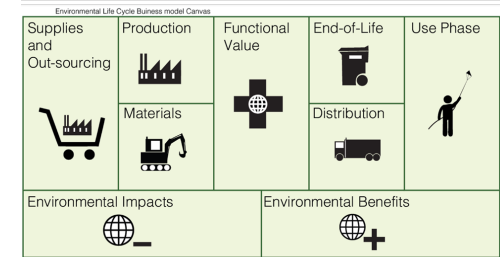
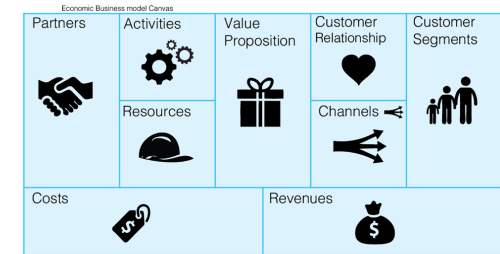


What is Triple layer business model?

“A business model describes the rationale of how an organization creates, delivers and captures value.”

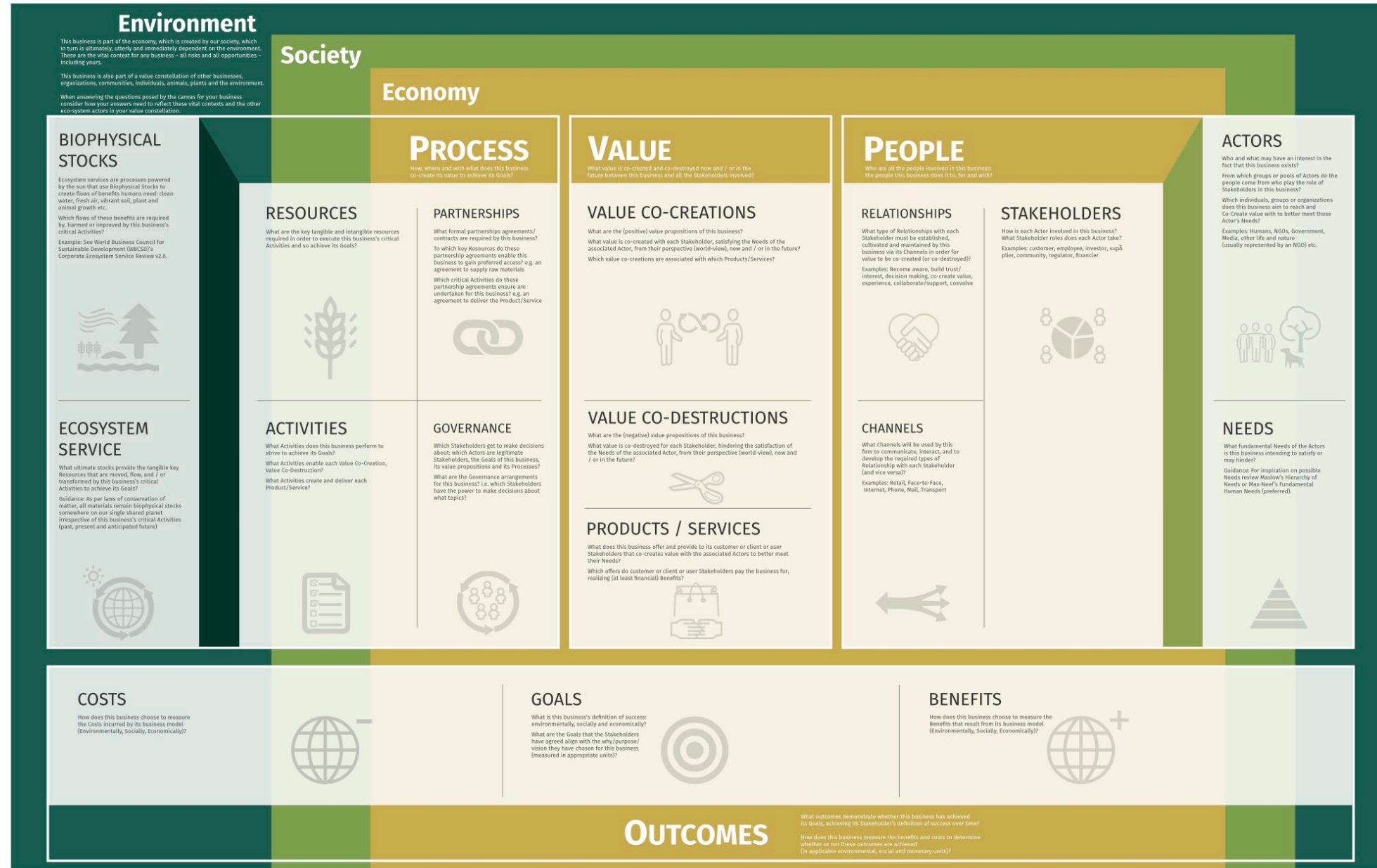
Osterwalder and Pigneur, 2010

“A sustainable business model as the rationale of how an organization creates, delivers and captures economic, environmental and social forms of value simultaneously.”



Joyse et al. 2015







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Steps towards flourishing triple-layer business models...

Who do we need on our Team?



Photo: Fiskarlaget



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NORWEGIAN SEAFOOD COUNCIL

Norwegian fisheries record export year in 2023



Sjømatnæringen kort fortalt



53 300 ansatte
fangst, oppdrett, industri og
spesialiserte leverandører

+



52 600 ansatte
gjennom ringvirkninger

=

105 900
ansatte



120 milliarder
kroner i verdiskaping*



Bidrar med
34 milliarder
kroner i skatt*



Vekst i verdiskaping
på **110 prosent** siden
2011

*= inkluderer ringvirkninger





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Fishermen are not against offshore wind

Fishermen want renewable energy,
and they want to fish

Does 30GW of offshore wind power = 7,500 km² or 30,000 km² ?

Aversion to loss is a primitive survival mechanism

— we run away from the tiger
faster than we run toward food.

<https://www.nytimes.com/2024/01/18/opinion/inflation-rate-election-voters.html>

DREIEBOK



FORMÅL

- Formålet med dreieboka er å peke på hvordan en kan oppnå best mulig sameksistens mellom fiskeri og havvind i utviklingen av havvindprosjekter, innenfor områder myndighetene allerede har åpnet for slik utbygging.



Sør-Norges
Fiskarlag

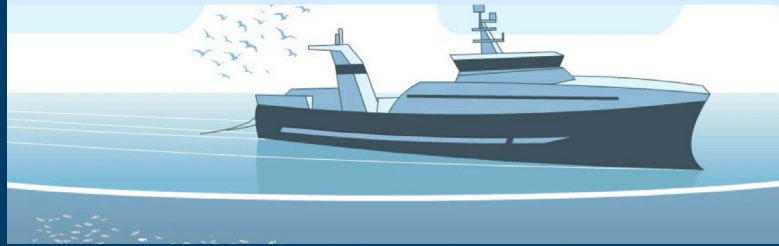


Norges
Fiskarlag OFFSHORE NORGE



fiskebåt

PRINSIPP FOR SAMEKSISTENS



#1

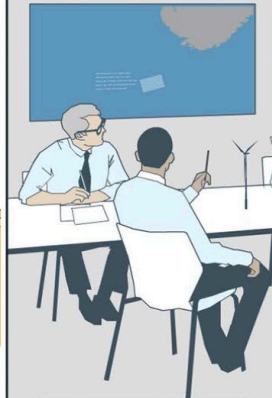
ÅPNING AV
OMRÅDER FOR
HAVVINDUTBYGGING



Myndighetene beslutter hvilke areal som skal åpnes for havvindproduksjon.

#2

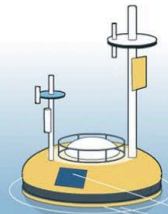
PROSJEKTUTVIKLING
- FØR TILDELING AV
AREAL



Modne prosjekt og utvikle foreløpige planer for sameksistens.

#3

PROSJEKTUTVIKLING
- ETTER TILDELING
AV AREAL



Utarbeidelse av prosjektspesifikk konsekvensutredning, inkludert offentlig høring. Gjennomføring av undersøkelser.

#4

UTBYGGING OG
INSTALLASJON



Installasjon av kabler, fundamenter, turbiner, forankringssystem (flytende) og offshore transformatorstasjon, samt eksportkabel til land.

#5

DRIFT OG
VEDLIKEHOLD



Drift og vedlikehold-aktiviteter i havvindparken. Implementere rutiner for sikkerhet og beredskap og håndtering av ev. ulykker.

#6

LEVETIDS-
FORLENGELSE,
DEKOMMISJONERING
OG OPPRYDDING
ETTER ENDT
LEVETID



Søke om levetidsforlengelse. Gjennomføring av plan for fjerning og tiltak for tilbakeføring.



STOP WINDMILLS
CFACT.ORG

save the whales
WINDMILLS
CFACT.ORG

save the whales
save the whales
save the whales

STOP WINDMILLS
CFACT.ORG

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save the whales
STOP WINDMILLS
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CAPE

BM

Equality

Honesty

Justice

Integrity

Compassion

Freedom

Wisdom

Respect

Universal values

Tolerance

Responsibility

Environmental Stewardship

Peace

Courage

Solidarity

Gratitude



Grit/Standhaftighet

Passion

Courage

Universal values

Sharing/Communalism

Tolerance

Responsibility

Solidarity

Enthusiasm

Gratitude



Innovation
Environmental Stewardship

Curiosity





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Technology for a better society

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