



UiT Norges arktiske universitet

(Co)Designing future fisheries: A study of fishers and fishing technology designers

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Digital transformation, fisheries, and uncertainty

Digital transformation across industries

- is also reshaping fisheries

Fisheries now and then...

- massive transformations over the past 50 years, from hydraulics to autopilot systems

Promissory narratives and uncertainty

- emerging digital and Artificial Intelligence-based tools to increase efficiency, sustainability, and enable green shift

→ What does it mean for fisheries in the future?

- a need for *good design practices*



Technological futures are continuously constructed

Technological design:

- *is never neutral* (Winner, 1980)
- *forms how we exist (= it is ontological)* (Willis, 2006; Fraga, 2022)
- *is future-shaping* (Jasanoff, 2015)

→ Whose visions and whose choices matter?

- visions and perspectives of **technology users** tend to be underrated, but...
- they can compliment visions of **professional technology designers**, and...
- inform good design practices to ensure **ethical, inclusive, and sustainable** technology design in the future

Research design: Interdisciplinarity, flexibility, recursivity

Case study: Norwegian small-scale fisheries (SSF)

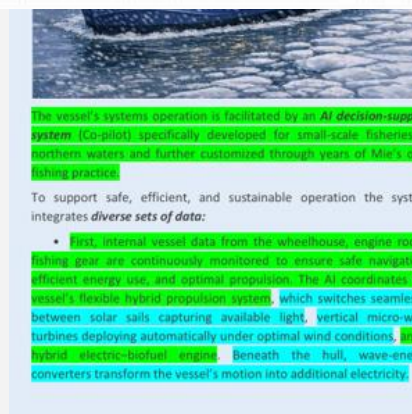
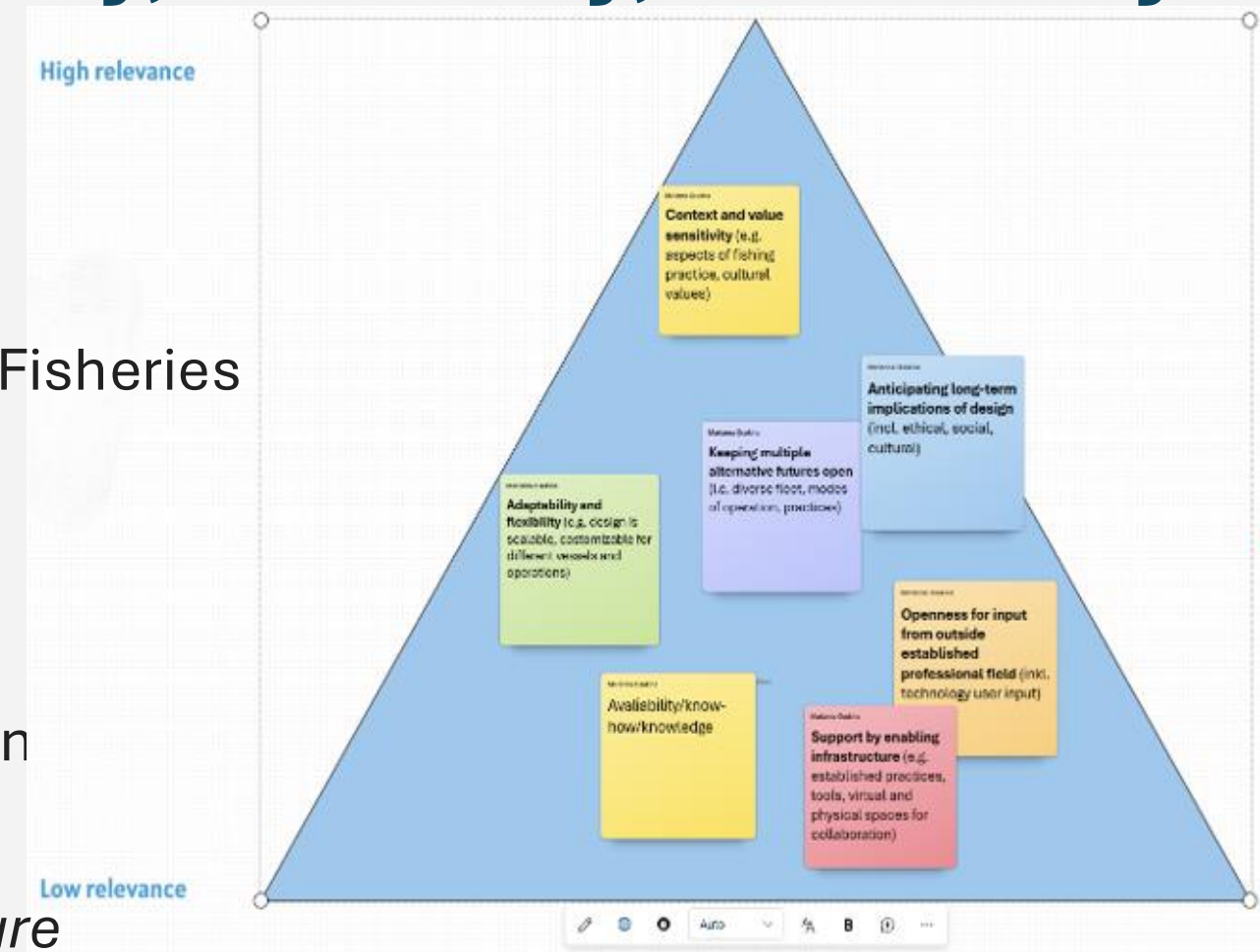
Interdisciplinary theoretical lenses (*phoropter*)

Science & Technology Studies – Futures studies – Design – Fisheries

Flexible and recursive methodological approach

Research process:

1. Elicit attitudes and future visions of technology users and developers in SSF (*multi-sited fieldwork*)
2. Build speculative and critical artefacts (*speculative future design for SSF*)
3. Facilitate dialogue between user and developer (*workshop*)
4. Critically reflect on the outcomes of previous steps to formulate *provisional principles of good design practices*



darkness, disappearing the moment it touches the smart coating of the deck. Some snow gathers in the corners where the smart surface isn't smart enough. Technology always has edges where nature decides to step in. That is also what she learned from years of fishing. A few snowflakes land on the arm of her suit. She brushes them off pensively and inhales the cold air. For a moment, the sea surface looks exactly as it did when she was a child, out here with her grandfather. Fishing was different back then... Slower, rougher, less quiet.



Attitudes and future visions of fishers and marine designers

SMALL-SCALE FISHERS:

Vision that is shared among the fishers: *Cautious interest towards emerging technologies - in the future these will benefit only large vessels and fleets.*

Visions that **are NOT yet shared** among the fishers:

- **Machines working with fisher:** *You can go out and deploy fishing robots and the boat just lies in the area while the **robots fish and then they come back**, and you pick them up.*
- **Machines working instead of fisher:** *When I think of digitized or automated things, the first thing that comes to my mind is **some science fiction movie**... and what makes these things a bit scary is that **humans are no longer in charge**...*

MARINE DESIGNERS: Problem solving orientation and unrealised (yet) creativity

- *Creativity is such a word both **useful and dangerous in our work**... it can throw us off our routines, disrupt our ways of doing things... **but the question is in what direction creativity will lead us**...*
- *You ask me what I think will be 50 years from now. I don't know what to think, because in my mind, all I imagine would already be here... fantastic transport and everything ... But it's not... **not like it's not possible, it's... just slow.***

What technology design practices can contribute to better futures for the small-scale fisheries?



Principles of good practices for designing technology for better futures

“What is a better ship? – it all depends” (Ulstein & Brett, 2015)

Acceptable technologies – that their users consider good for themselves and for society
(Kinnula et al., 2020)

Fishing technology design must be:

1. Context and value sensitive
2. Open for input from outside
3. Supported by enabling infrastructure
4. Adaptable and flexible
5. Anticipate long-term implications of technology and of design choices
6. Keep multiple alternative futures open

Thank you for your attention!

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