

# Blockchain technology for improving decision making in seafood supply chains

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1<sup>st</sup> Symposium on Catch Identification Technologies, Bergen

# Smartchain -

Smart solutions for advancing supply systems  
in blue bioeconomy value chains



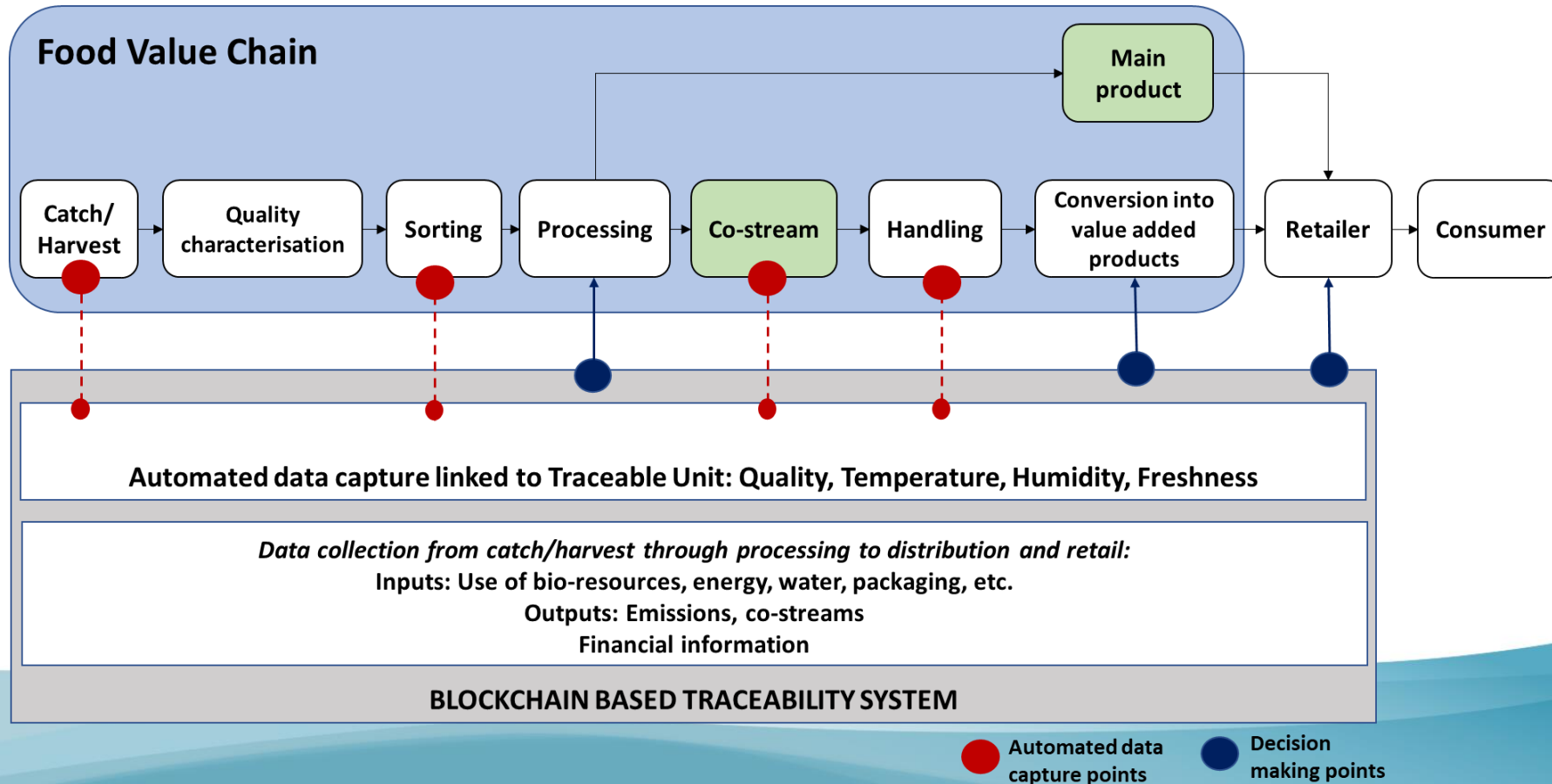
## Key information

- ERA-net project led by SINTEF Ocean
- **Duration:** 2021-2024
- **Budget:** 1.759.000 €
- **Partners:** University of Iceland, BRIM, Markmar, Seagarden, Technical University of Denmark

## Objective

*Enable supply chain decision making based on a sustainability assessment framework supported by blockchain traceability system to improve production planning, logistics optimisation and overall circularity*

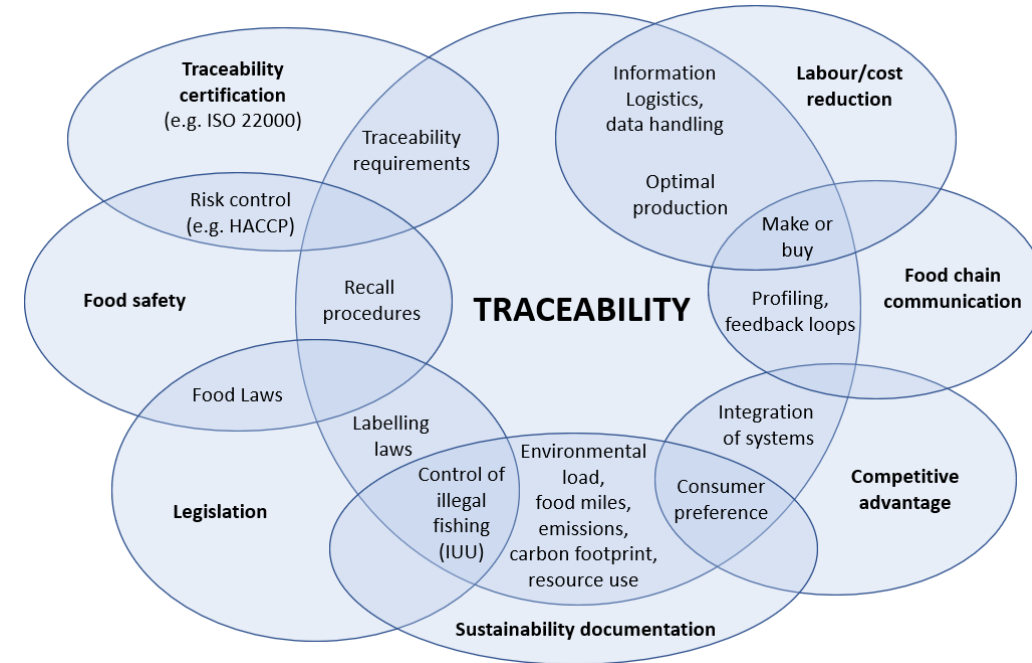
# Mapping information flows in Norwegian and Icelandic seafood supply chains



# Food traceability



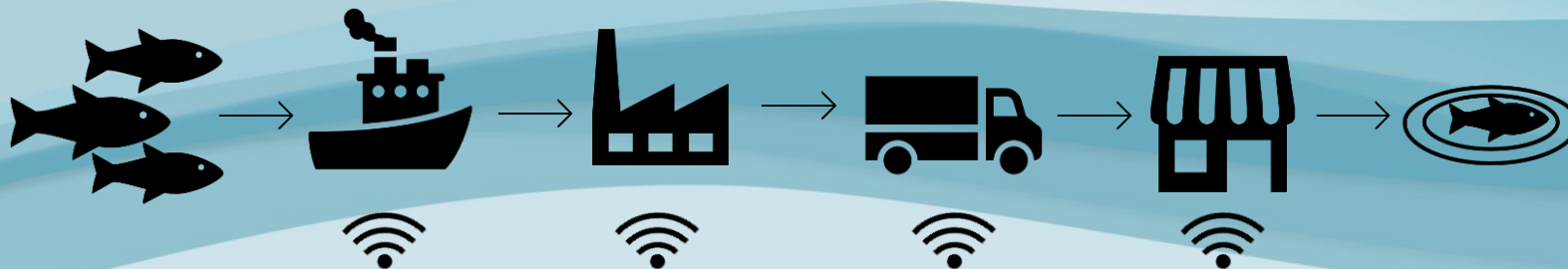
- Traceability: "to trace"
- Drivers for traceability in food supply chains
  - Food safety
  - Consumer demand
  - Food fraud – reduce illegal, unreported and unregulated fishing (IUU)
    - 36% of all seafood products are mislabelled (The Guardian, 2021)
  - Legislations
    - One-up one-down traceability
  - Sustainability
  - Profits and increased market value by storytelling



Traceability drivers in the food sector, adapted from (OECD and FAO, 2009)



- Blockchain
  - Distributed ledger technology
  - Immutable
  - Increasingly used in food traceability systems
- Why use a blockchain based traceability system
  - Increased demand from consumers
  - Prevent illegal, unregulated and unreported (IUU) fisheries
  - Increase market value – storytelling of food products
  - Complex supply chain where operators do not trust each other





# Mapping information flows in seafood supply chains in Norway and Iceland

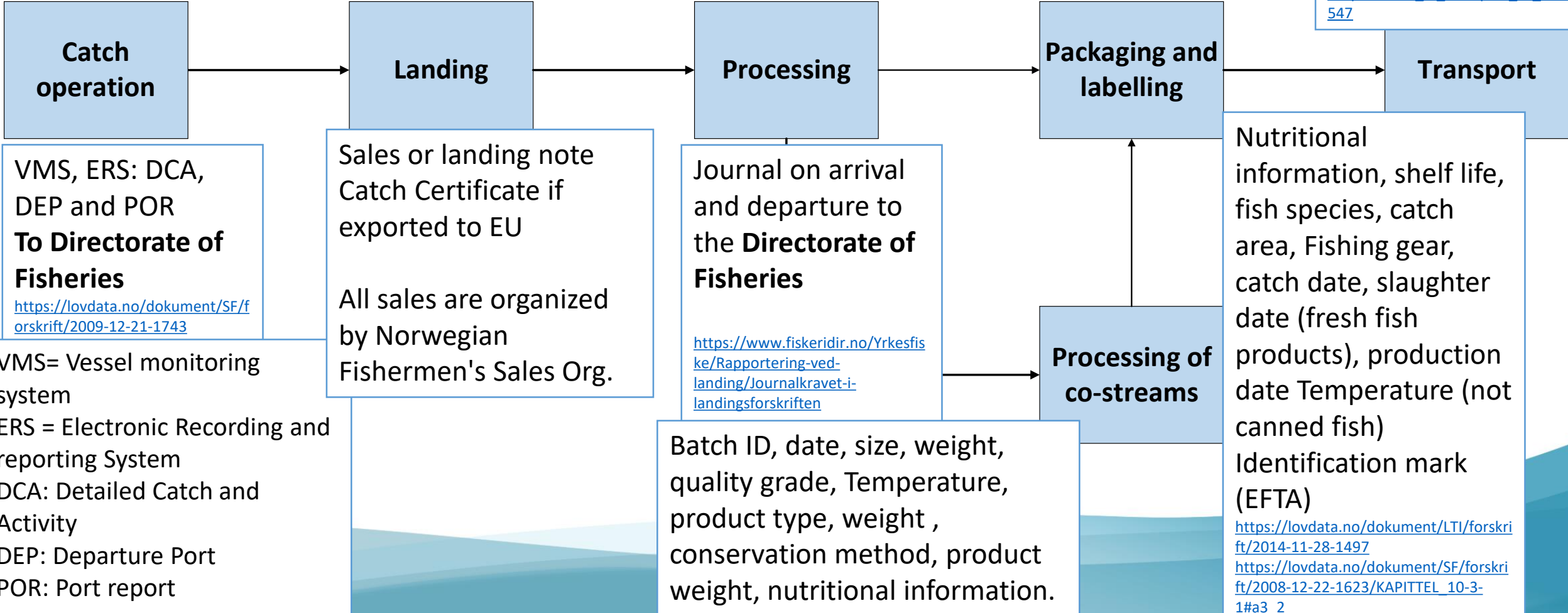
- Fisheries and Aquaculture
- Review of existing literature
- Interviews with
  - Processing company
  - Processing of co-streams
  - Software supplier
  - Additional interviews conducted in Coolfish project (NFR 294662)
    - Fishing company
    - Two Fishermen Sales Org.

<https://www.sintef.no/en/projects/2019/coolfish/>



# Reporting and overview of data capturing in fisheries

Temperature log  
[https://www.mattilsynet.no/mat\\_og\\_vann/transport\\_og\\_lager/frakt\\_og\\_transport/krav\\_til\\_transport\\_av\\_mat.4547](https://www.mattilsynet.no/mat_og_vann/transport_og_lager/frakt_og_transport/krav_til_transport_av_mat.4547)



## Data currently not captured or not shared



- Fuel use
  - Energy use
  - Water use
  - Waste, types, amounts and treatment
  - Direct emission, types and amounts
  - Transport modes and routes
- 
- This information is crucial to estimate and communicate environmental sustainability





- Norwegian fisheries already capture and share data digitally
- Increased traceability can contribute to optimize production, improve decision making and increase sustainability
- Blockchain based traceability systemes are a safe and efficient solution to share data with the supply chain
  - Especially if the supply chain is complex and partners are not trustworthy
  - Allows fishing companys control of their products all the way to the market
- Next step: designing the functional specifications of the blockchain based traceability system

THANK YOU

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<https://www.sintef.no/en/projects/2021/smartchain/>