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# Technological solutions: EveryFish

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# EVERYFISH HEU

## Digital transition of catch monitoring in European fisheries

- HORIZON EUROPE
  - Project no 101059892
- HORIZON-CL6-2021-FARM2FORK-01-11
- Start 1.1.2023
- 48 months – end 31.12.2026
- 4 968 859 EUR → 3 880 352 EUR after UK partners were taken out
- 17 PARTNERS – 3 are associated partners without budget from EU (but funded by UKRI)
- 6 WPs
- WP leaders from SO, UEA, AZTI and Directorate of Fisheries in Norway



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## Partners: 17 from 8 countries

- Norway
  1. SINTEF Ocean (WP leder Admin and Comm..)
  2. Havforskningsinstituttet
  3. Fiskeridirektoratet (WP leader)
  4. Melbu systems AS
  5. Aqua Maritime AS
- Denmark
  1. DTU
  2. Anchor Labs KS
- Spain
  1. AZTI (WP leader)
  2. Data Fish Technology Solutions SL
- Netherlands
  1. Wageningen University
  2. Stichting Wageningen Research
- Turkey - University of Cukurova
- Belgium – ILVO
- Romania – ASSIST Software SRL
- United Kingdom (Associated Partners)
  1. University of East Anglia (WP leader)
  2. CEFAS
  3. University of St. Andrews



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# Work packages

- WP 1 – Ethics
- WP 2 – Admin
- WP 3 – Dissemination, Communication & Exploitation
- WP 4 - Technological solutions for automatic catch recording
- WP 5 - Use in management, science and industry
- WP 6 - Data collection and validation in European case fisheries





## WP 4 - Technological solutions for automatic catch recording

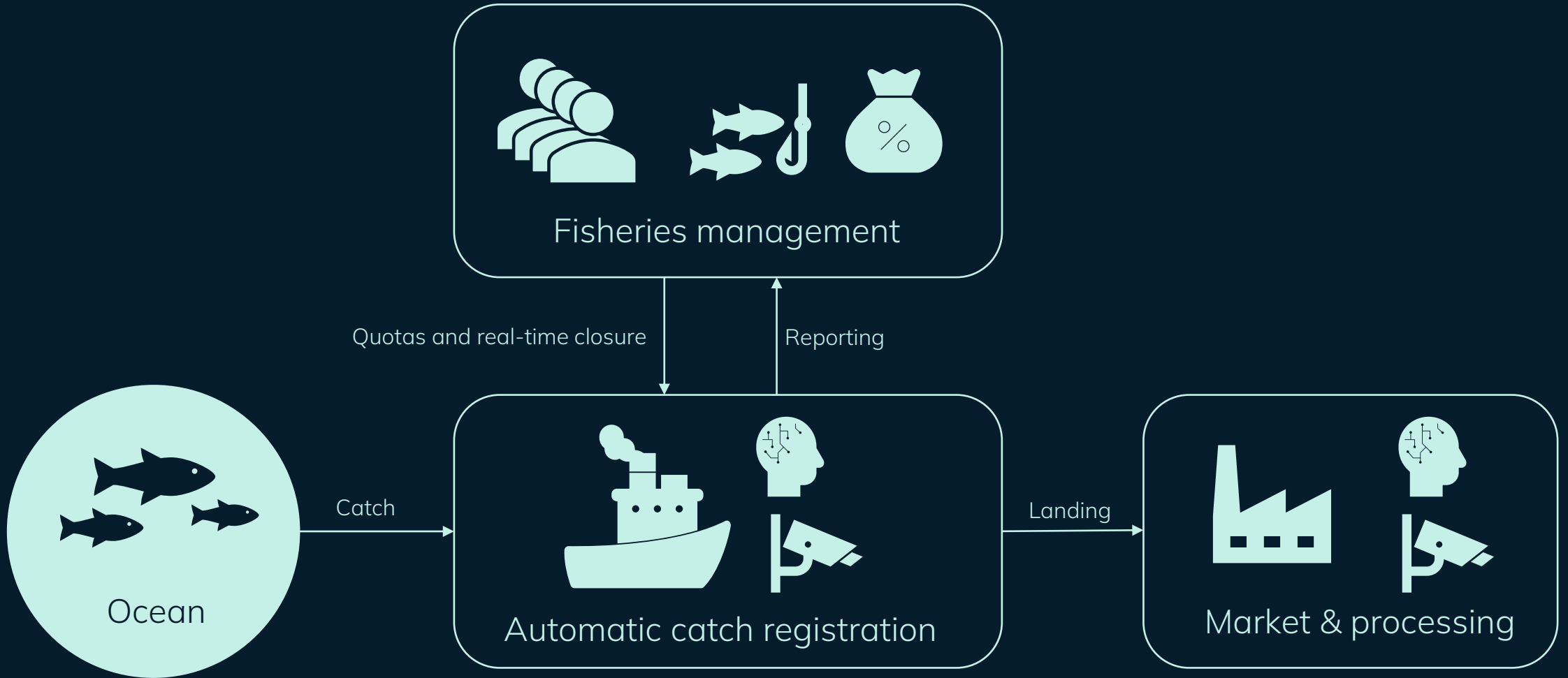
- Develop open-source generic AI architecture and modules for computing the species and size of fish, applicable to the European fisheries at large.
- Standardize the types of AI modules and their interfaces.
- Develop protocols for initial and continuous training of AI models, as well as protocols for dealing with their inherent uncertainties, throughout lifetime of the products and apps that use these AI models.
- Perform a comparative study of individual AI modules and their combinations into novel AI architectures.
- Develop ten products and apps integrating open source core AI modules.
- Provide state-of-the-art data interfaces, protocols and formats to facilitate trustworthy data sharing.
- Provide curation of data products.



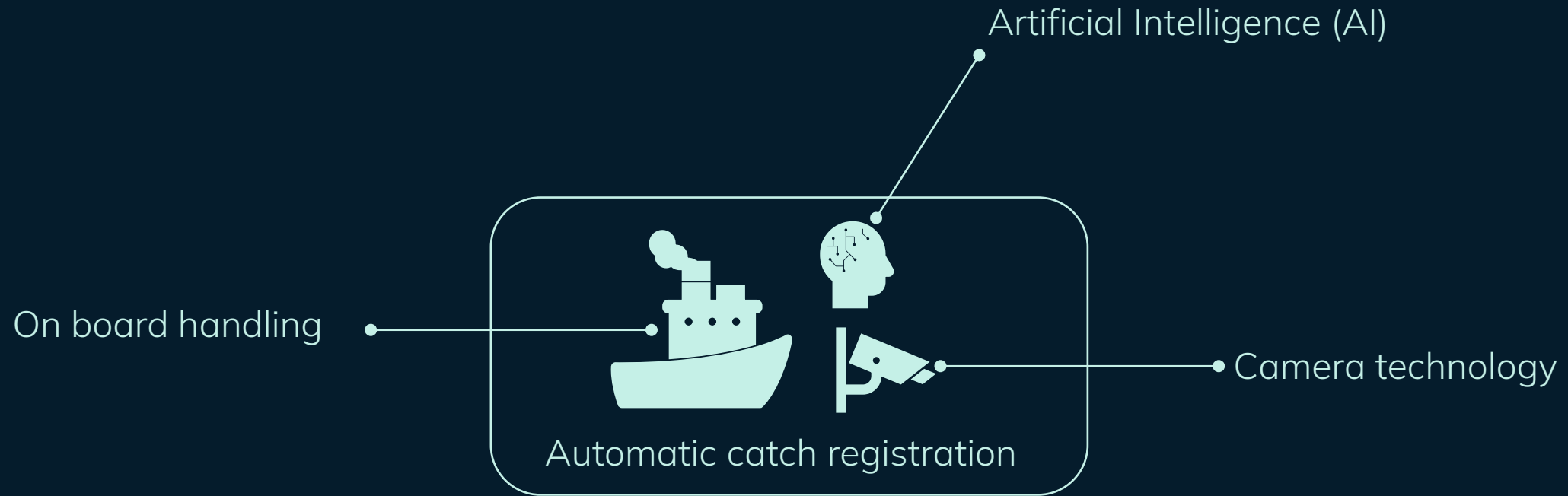
## WP4 – tasks & leaders

- T4.1 - Specification, protocols, and comparative study
  - Lead IMR - Participants: all participants in WP4
  - Duration: M1-M36
  - Subtasks: 5
- T4.2 - Improved AI modules and algorithms
  - Lead SO - Participants: UEA, SO, WU, AZTI, CU
  - Duration: M9-M40
  - Subtasks: 3
- T4.3 - Products and apps
  - Lead UEA - Participants SO, MELBU, ANCHOR, WU, WR, DTU, CU, SAU, AZTI, DATAFISH.
  - Duration: M1-48
  - Subtasks: 9
- T4.4 - DLT Distributed ledger technology-based traceability system
  - Lead SO - participants ASSIST
  - Duration: M1-M36
  - Subtasks: 3





**Technology context**



**Technology**

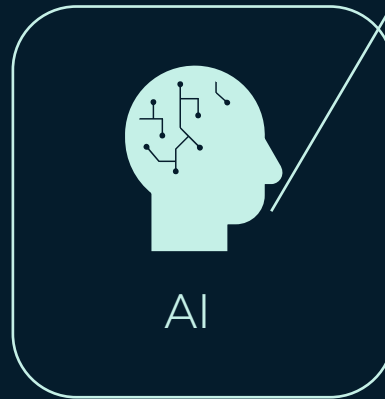




## Examples of technological solutions in EveryFish



I'm confused?  
Show me the fish a  
million times, please!



**Artificial Intelligence (AI) for species recognition**





**Digital twin**



**New image**

**Generating enough data for the AI**



Cod



Saithe



Haddock

**AI for species recognition:  
>99% accuracy on 3 whitefish species**

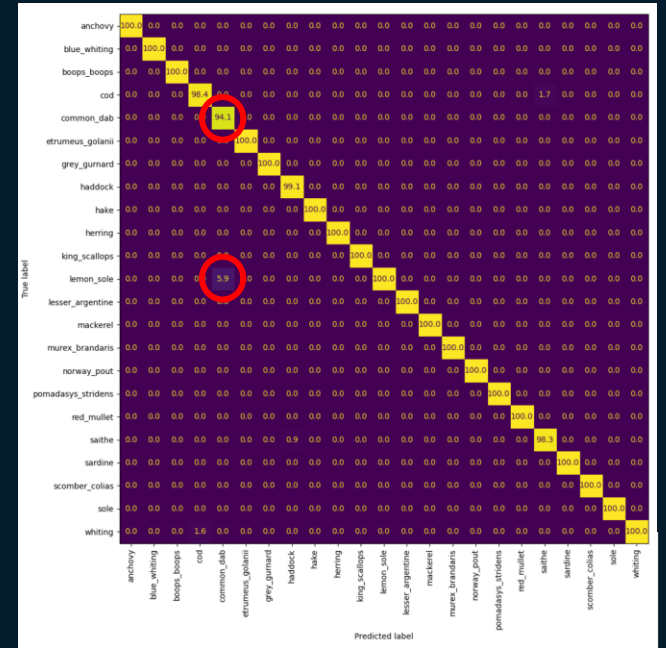




Lemon sole



Common dab



AI for species recognition:  
 >98% accuracy on 20+ species, similar species less accurate

**Products and apps: CatchScanner**





**Products and apps: CatchScanner**



Frame 122: 68/1426 labels  
1 Grey gurnard  
1 Herring  
2 TOTAL



## Summary

- Technological solutions for species recognition and weight estimation of fish are being developed in EveryFish.
  - Open-source core AI modules
  - 10 products and apps
- The solutions will be developed in a context, including industry, management and fishers.
- We believe the technological solutions will become mature, and some will be commercialized, during the EveryFish project.
- The question is how to apply the solutions in a way that is compatible with the interest of industry, management, and fishers, and the fish.
  - We hope to begin answering this question during EveryFish.







Interested in more information about the EveryFish project in general, please contact the EveryFish project coordinator:

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