

“Intelligent farming and health  
control in landbased  
recirculating aquaculture  
systems”

IntelliRAS

## Background:

**RAS is considered a solution for sustainable production**

**But it is not sustainable for the producer!**

**Health challenges, feed waste and high investments leads to financial uncertainty**

For example, 50% of the production costs are to feed





Relevance:

RAS production is used all over the world

In Nordic countries it is highly specialized and advanced

High-tec solutions for controlling water quality

Data from monitoring is being generated



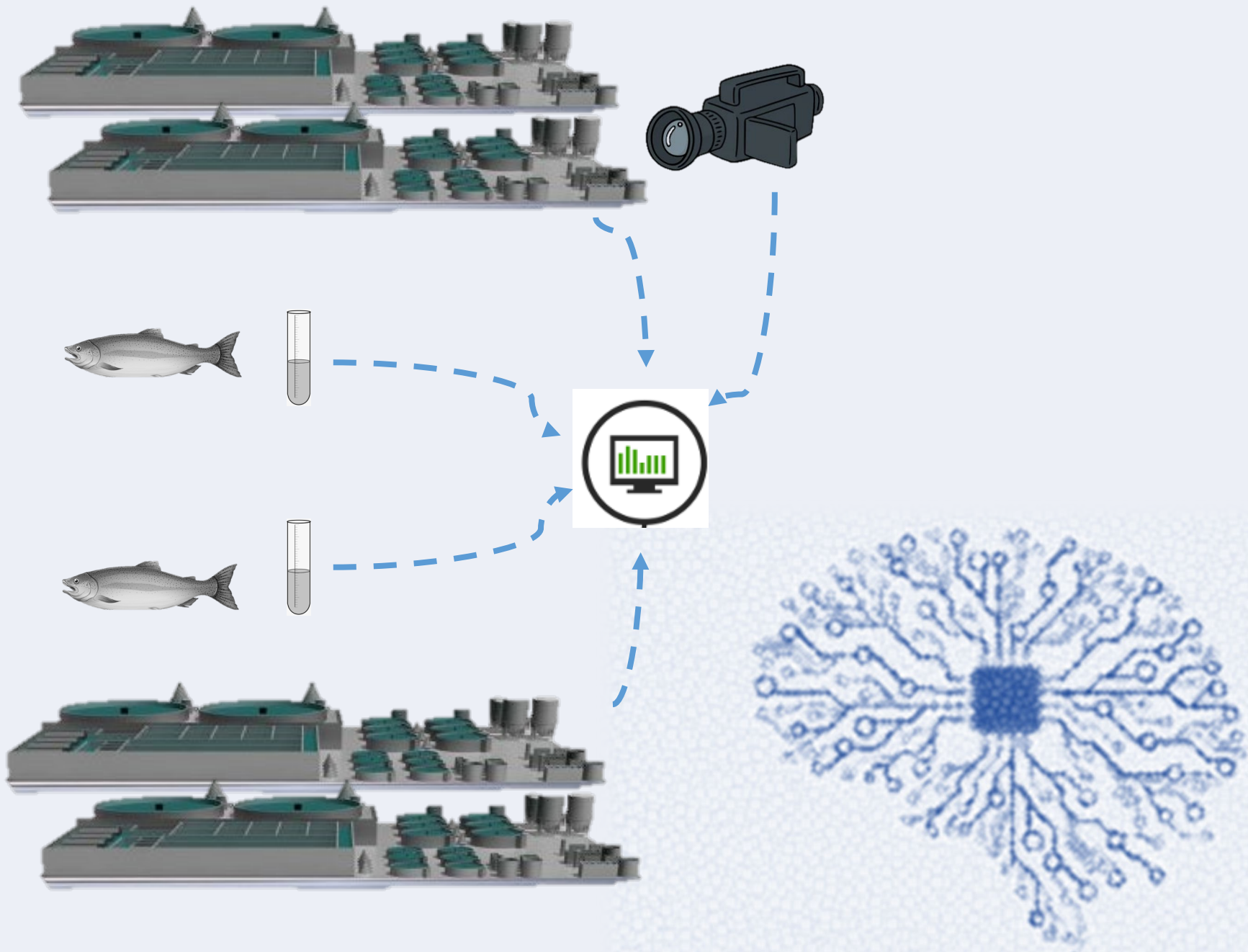


**The goal of IntelliRAS:**

**Move from experience-based to knowledge-based decision making**

**Increase sustainability in production, environment, health and welfare**

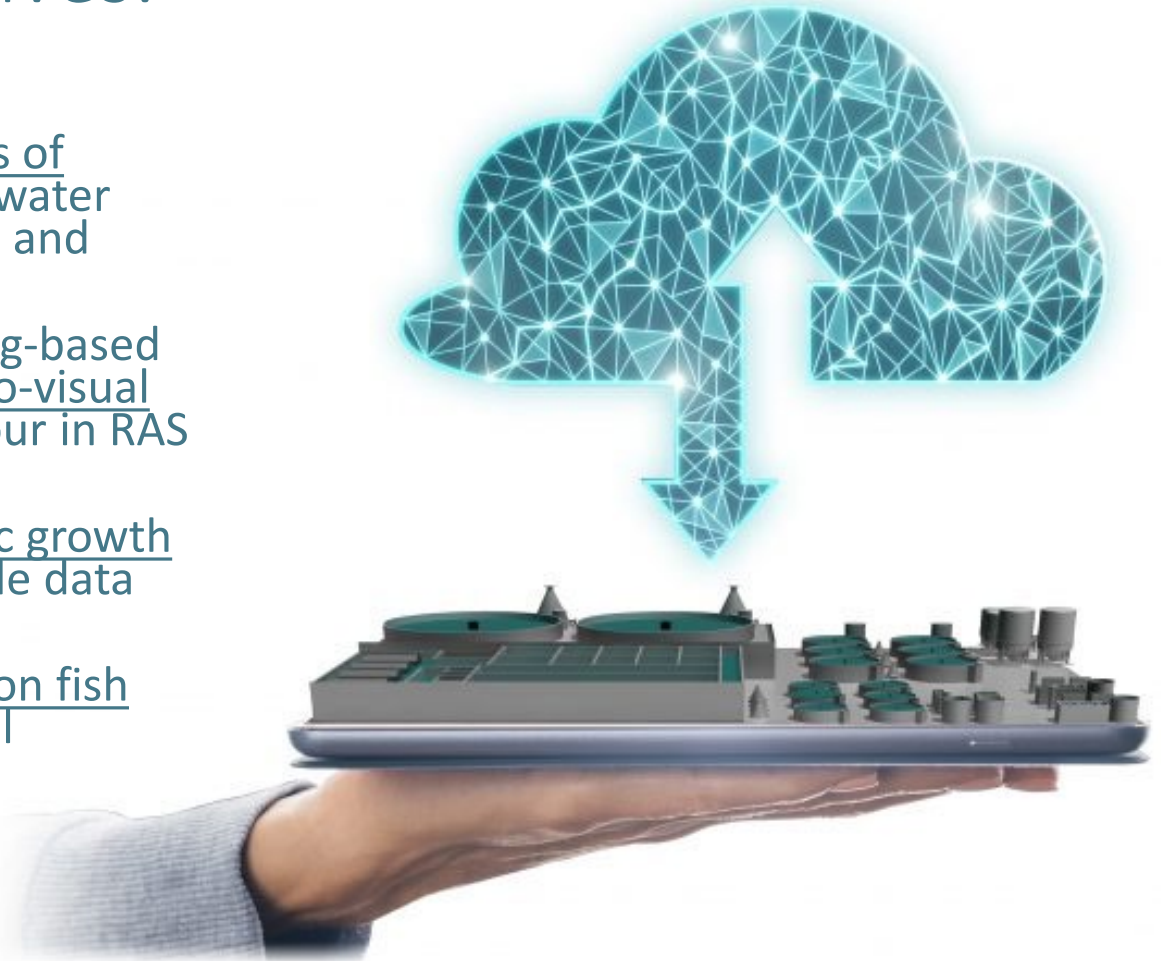
**«Precision Fish Farming»**





# Specific objectives:

- Integrating several sources of bigdata including data on water quality, feed usage, health and production
- Developing a deep learning-based prototype system for audio-visual monitoring of fish behaviour in RAS farms
- Development of a dynamic growth model that include multiple data sources
- Implementation of precision fish farming system for optimal production
- Development of a health monitoring system.





# Norwegian Veterinary Institute

Project leader

Combining BigData: Production and health

Health and welfare:

Sample analyses, fish behaviour, surveillance



# Aarhus University, Denmark

Dynamic growth model

Intelligent Feed Control

Disease monitoring system







# Natural Resources Institute Finland

Machine learning: Fish behaviour from camera and hydrophones

- «Normal» behaviour

- Behaviour when feeding

- Detection of disease and death

Estimating leftover feed for intelligent feed control system



Oxyguard  
International AS  
Denmark



Audiovisual monitoring in commercial RAS-farms

Cloud-based collection of sensor and production data «Cobália»

Implementation of system in commercial farms



[www.vetinst.no/intelliras](http://www.vetinst.no/intelliras)

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