

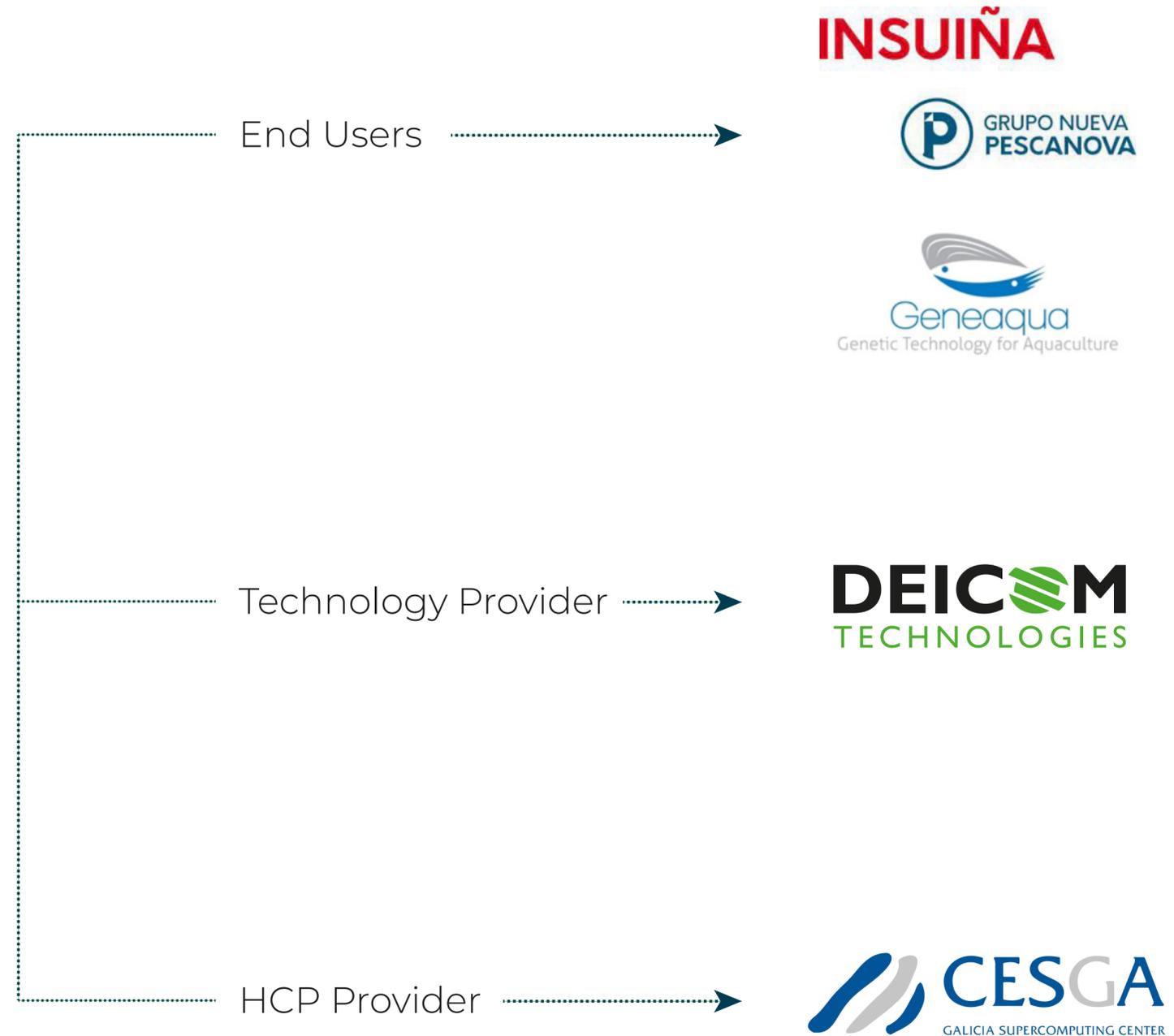
SEA GROWTH ACUATIA

A FF4EuroHPC Project Experiment

DEICOM
TECHNOLOGIES

Partners

Insuiña S.L. is a subsidiary of the Grupo Nueva Pescanova corporation, specialised in the cultivation of turbot. Deicom Technologies is an SME and Data Analysis solutions provider employing Big Data and AI technologies. Geneaqua is an SME providing genetic analysis solutions. CESGA is a public HPC centre providing services for R&D.



The challenge

Improvement of productivity in aquaculture

In aquaculture, fish growth and mortality are affected by highly volatile environmental conditions such as tides, temperature, salt levels, and water nutrients. **This can result in losses to businesses of millions of Euros.**

Improving the ability of aquaculture farms to handle volatility and thereby increase productivity requires the centralised and rapid analysis of millions of productive, genetic, environmental, and biological data.



The solution: ACUATIA

Artificial intelligence applied to the
whole growth and farming techniques.

ACUATIA is an AI based tool where each of the processes and environmental conditions are modeled using AI predictors, which are trained on the abundant data present in the production databases.

Non-HPC approach: deeply analytical, few long trainings in conventional machines.



HPC has enhanced

ACUATIA,

a DEICOM fish farm software

HPC enables a deeper exploration of the numerical approach to process modeling. The AI predictive models can be trained more extensively, the hyperparameters can be fine-tuned and the datasets can be bigger.

Impact

The food industry is challenged to feed a growing world population of 8 billion.

Precision aquaculture contributes significantly to a healthy human diet while improving animal welfare in the farms, reducing food waste, and avoiding overexploitation of marine resources.



Impact

Business impact

for aquaculture is direct and significant: the faster growth of the fish through optimized aquaculture management means that the appropriate sales-weight is reached 2 months earlier.

Positive environmental impact

the reduction of the sale age by 2 months leads to a proportional reduction in saltwater consumption, oxygen usage, and electricity consumption.

Commercial impact

furthermore, because of the new accurate and faster growth predictions, the commercial department has more reliable information about the fish that they can offer to their customers and stock breaks (highly undesirable) are prevented.

Benefits

30% | reduction in predictive model error through HPC.

7%

improvement in fish growth and a related 6.5% cost savings for the end user.



50%

Shortening time to production in new user facilities or new procedures by 50%.

know-how

Increasing business know-how for datadriven decisions for aquaculture farmers.

Long term benefits from FF4EuroHPC support

- Before using HPC there were a lot of human work for filtering and analyzing data looking for best parameters to train new models. Each test phase took many hours of classical computation and human analysis.
- The automated and deep analysis that resulted from the FF4EuroHPC experiment led to a better understanding of the predictors and long term improvements in the capabilities of the ACUATIA tool.
- Data analysis service providers can improve predictive models, error results, and time reduction to producing new custom predictive tools.
- Data analysis service providers can adopt the approach taken in this experiment to enhance their service offerings through improved predictive capabilities and faster development of customized predictive tools.



Thank you so much for your attention!

Gabriel González Fernández

gabriel@deicom-technologies.com



DEICOM
TECHNOLOGIES
www.deicom-technologies.com

Rúa de Urzáiz, 38, 1C, 36201 (Vigo)

(+34) 886 312 510

info@deicom-technologies.com

Technology, our passion; your challenges our reason for being.