



Intelligent Fish feeding through Integration of
Enabling technologies and Circular principle

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Introduction

- From November 2018 to October 2022
- Budget: 7.2 M€
- Partners: Malta, Norway, Spain, France, Germany, Denmark, Greece, Hungary:

16 partners: European companies (SMEs and larger companies) and Research & Innovation expert groups joining effort to achieve an innovation leap towards the implementation of smart feeding products for the fish farming industry.



Overall objectives

FEEDING AND MONITORING TECHNOLOGIES

Obj. 1) Develop and validate **online access to key fish and biological parameters** (Fish-Talk-to-Me).

Obj. 2) Build an **integrative platform for testing, qualifying, and demonstrating** the future feed formulas and feeding technologies in controlled environment (SMART RAS).

Obj. 3) Create **new global markets and value chains in aquaculture** feeding and control technologies through integrating state-of-the-art Internet of Things (IoT) and Artificial Intelligence (AI) based solutions.

NEW FEEDS, BREEDING AND CIRCULAR PRINCIPLES

Obj. 4) Identify new value chains using **circular principles**.

Obj. 5) **Qualify new sustainable feeds** and feed ingredients and organic sources through biological assessments on the fish and environment.

Obj. 6) Qualify **breeding strategies** for new feeds with zero fish meal and high marine algae-based protein and fatty acid contents.

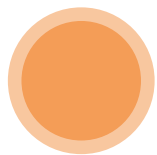
ENGAGING WITH THE SOCIETY

Obj. 7) Develop and apply an innovative **Responsible Research and Innovation** (RRI) platform that focuses on practices of “inreach” within the entire consortium and outreach to stakeholders and society.

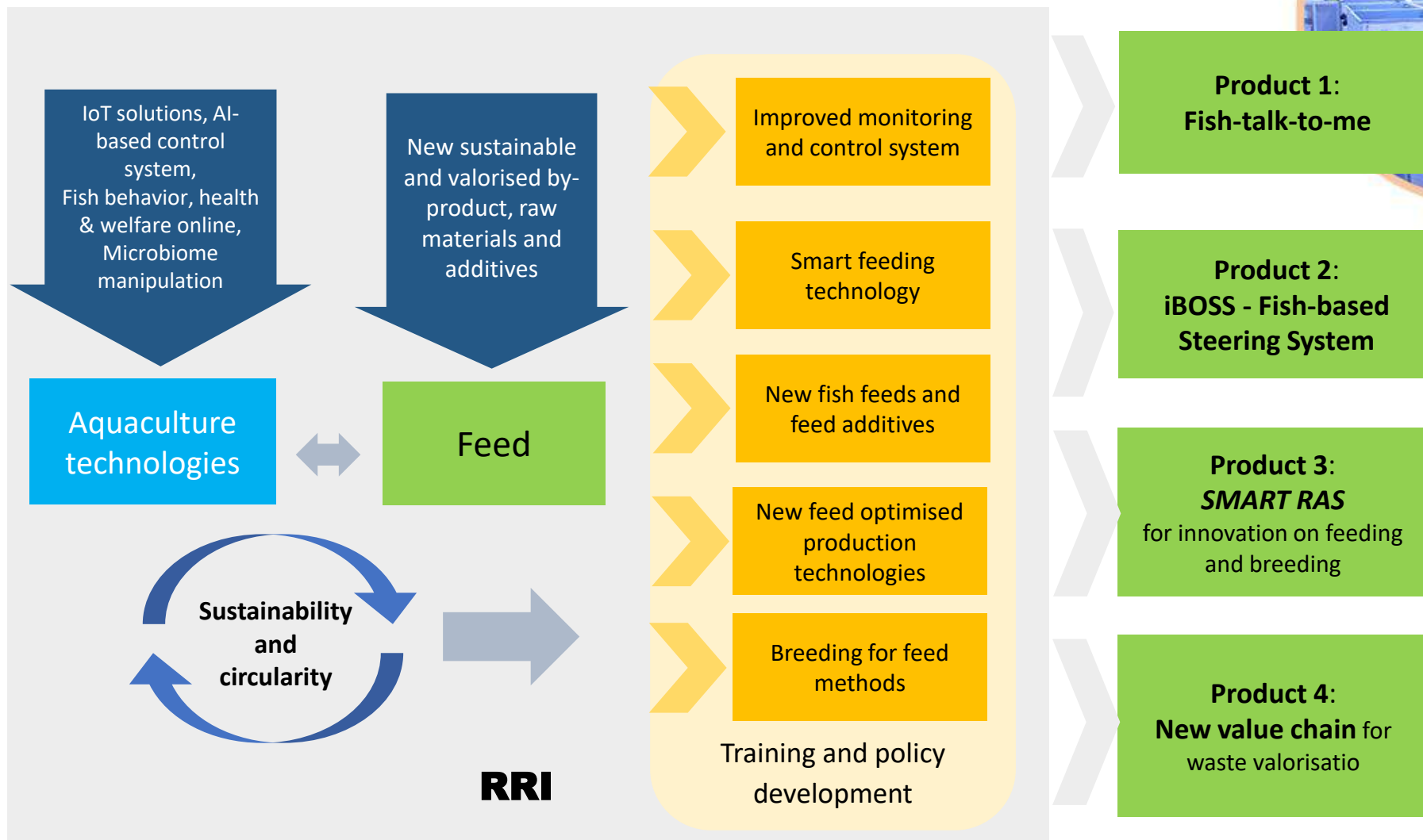
Obj. 8) Accompanying the digital revolution by **training the present operators in aquaculture** and educating the next generation on workers in the blue economy.

Obj. 9) Engaging with a broad range of **stakeholders, policy development, consumers** and the **aquaculture** industrial sector, worldwide.

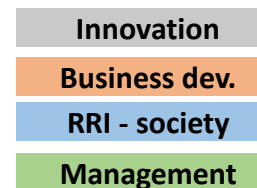
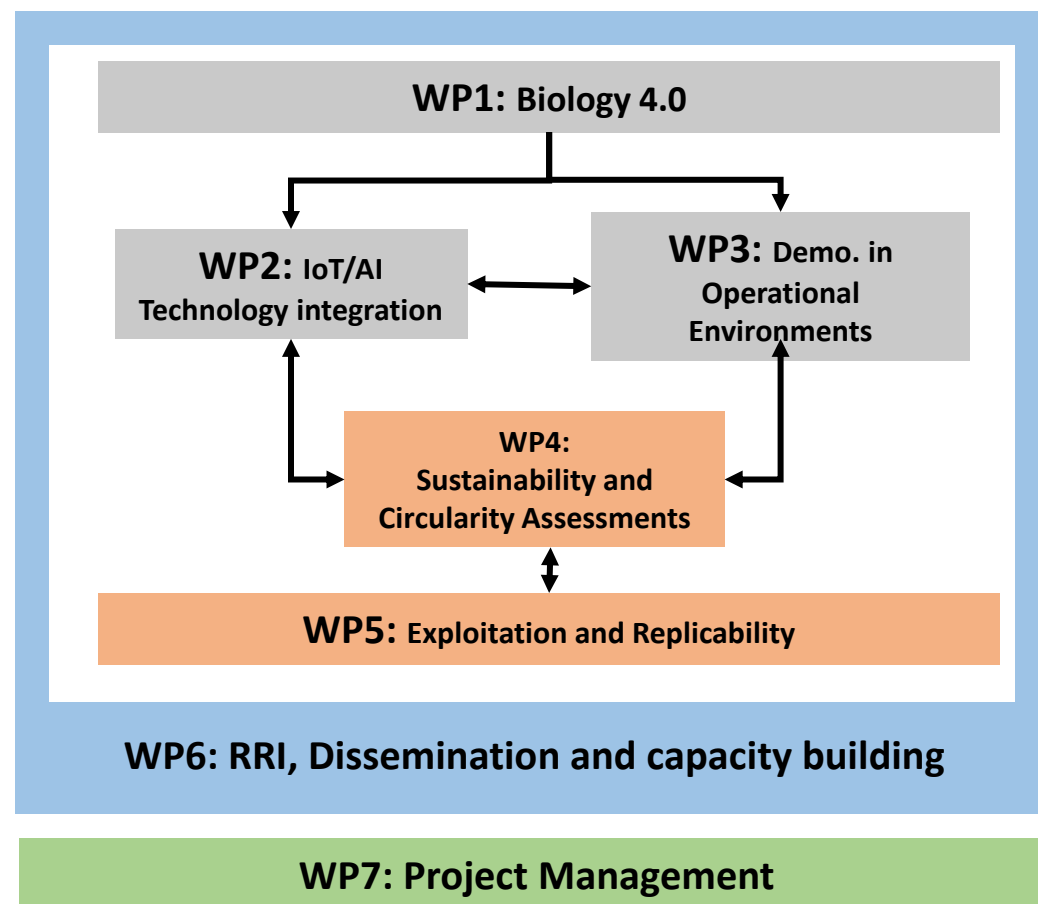




Concept



Implementation

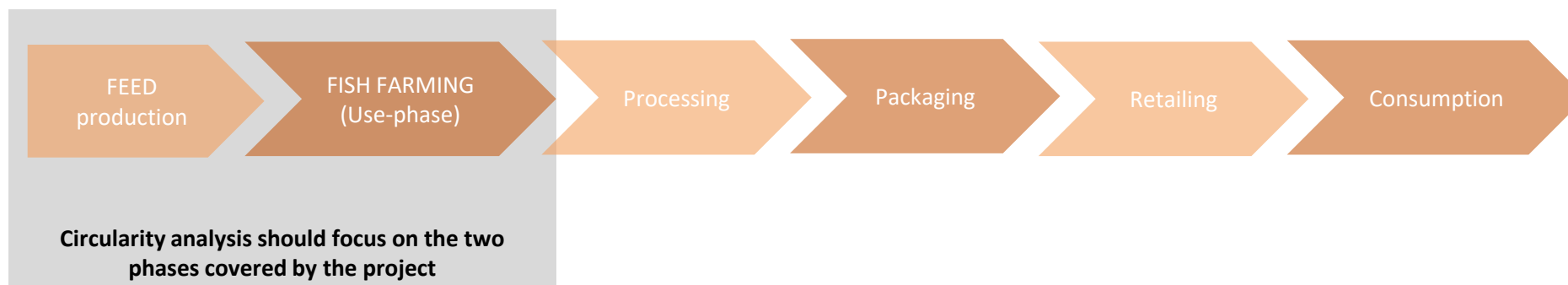


Circularity in iFishIENCi

WP4 OBJETIVE evaluation of the sustainability and circularity of the proposed aquaculture value chain and recommendations to increase the performance of the system, considering environmental, economic and social aspects, based on identification of hotspot along the value chain.

Methodology details

Step 1: To define circular economy indicators for the marine and freshwater value chain (month 1-month 24)

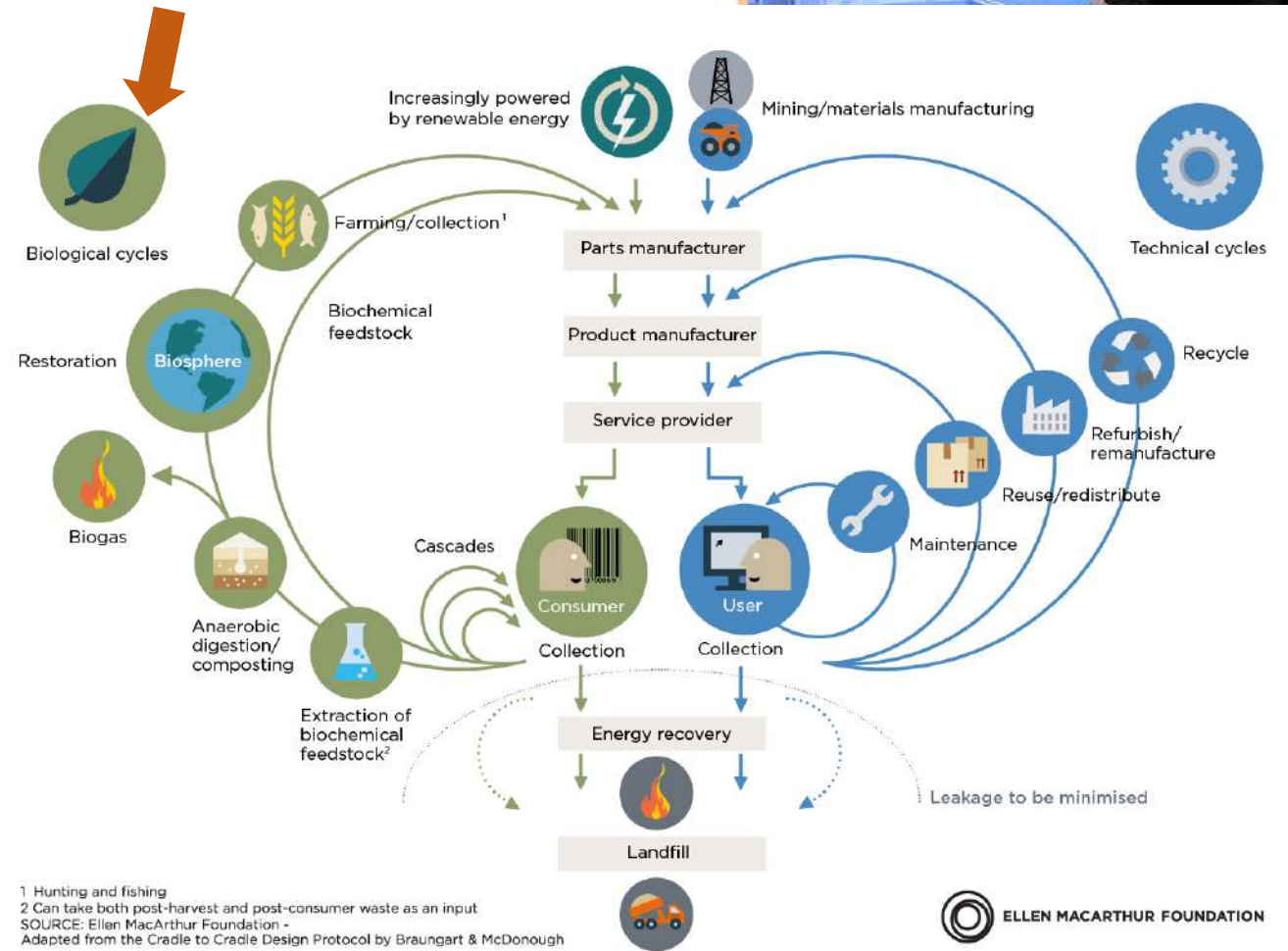


Circularity in iFishIENCi

Methodology details

Step 2: To quantify these indicators
(month 24-month 47):

- i.e. Material Circular indicator (Ellen Macarthur, 2015) method to measure the circularity along the value chain; but...:
 - ❖ *Currently it is based on technical cycles, not on biological cycles (including consumables like food)*



Circularity in iFishIENCi

The Circularity Indicators will be a tool to assess how well the proposed aquaculture value chains perform in the context of a circular economy

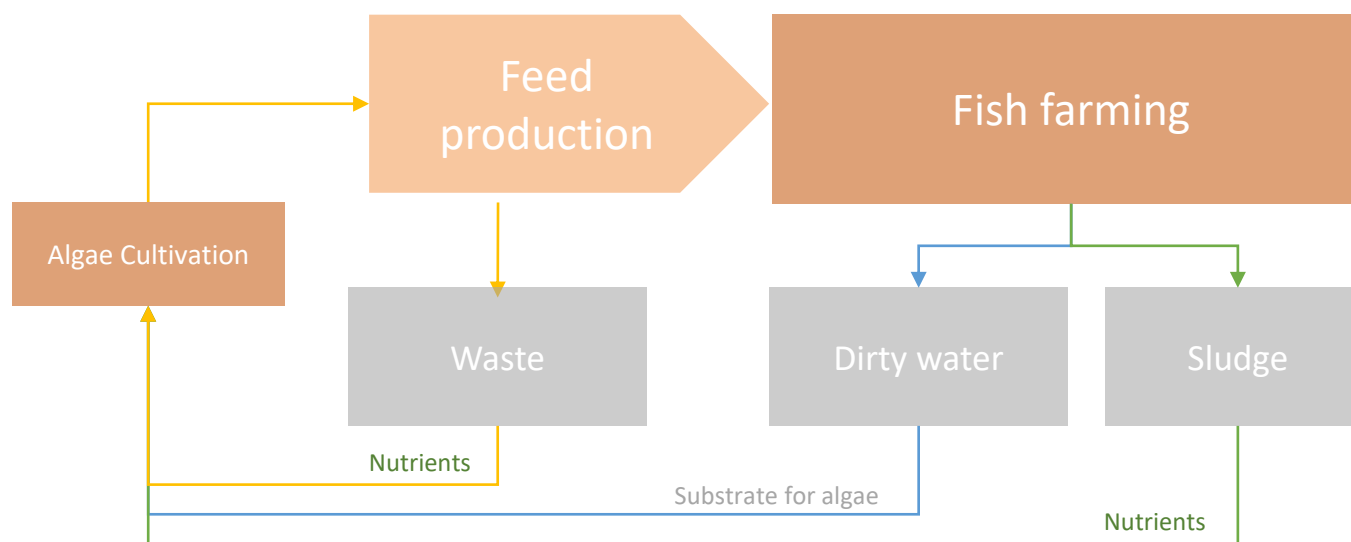
Circularity indicators should be defined to answer the following aspects:

- *How much input is coming from virgin and recycled materials and reused components?*
- *How much material goes into landfill or energy recovery?*
- *How much components are collected for reuse?*
- *How efficient are the recycling process used to produce recycled input?*



Circularity in iFishIENCi

Valorisation routes defined in the project → circularity measurement



Upcoming activities

- To identify the potential valorisation routes
- To identify the critical parameters, which determine the utility of the new feeds
- To develop a new methodology to measure the circularity



More details?

Check our video!

<https://www.youtube.com/watch?v=R09AeroiyKU>



XVII Congreso Nacional de Acuicultura
Murcia (Spain), May 9TH 2019



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