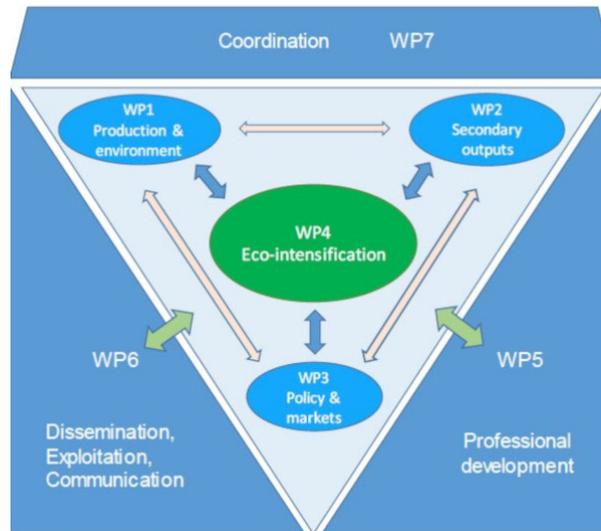


# Gain Project structure



## WP1

Production and Environment: this is an RTD WP, with the overarching goal of eco-intensifying the primary sector of production, through significant improvements to feed design and implementation of precision aquaculture. We will:

1. test alternative feeds, based on fish by-products, emerging ingredients, micro- and macroalgae, on a range of species and systems;
2. implement an Information Management System that makes Big Data actionable in real time, i.e. the huge volumes of data from heterogeneous sources, including moored sensors, satellite data, autonomous sensors, KPIs and simulation models, which are key elements of precision aquaculture. We will instrument farms with state-of-the art sensors for non-invasive monitoring of environmental variables and fish behaviour. The two components (feeds and precision-aquaculture IMS) will be tested at pilot sites, covering a wide range of aquaculture typologies.

## WP2

Enhancement of secondary outputs: this is an RTD WP, with the overarching goal of eco-intensifying the secondary sector of production, through significant improvements to by-product and side-stream re-use.

We will test a large range of innovative processes aimed at enhancing implementation of circular economy principles in the aquaculture sector. This includes:

1. capture and re-use of nutrients from fish farm sidestreams, conversion of sludge from land-based fish farms into fertilizer products, and obtaining renewable products from mortalities;
  2. production of animal feed ingredients from aquaculture by-products;
  3. innovative approaches to valorisation of shellfish industry by-products as biofilters in RAS and aquaponics;
  4. development of a framework for implementation of nutrient credit trading in Europe, including shellfish regulatory services in European nutrient management programmes. Large-scale implementation in different aquaculture typologies and geographical contexts will be evaluated by means of techno-economic analyses.
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### WP3

Policy and Markets: this is an RTD WP, with the overarching goal of supporting policy and market development. This includes:

1. evaluation of policy challenges to implementation of the circular economy, taking into account regulations on food safety and environmental sustainability;
  2. critical analysis of the aquaculture and fisheries sectors, to close the supply and demand mass balance for aquatic products and provide decision-makers with reliable information for setting policy;
  3. analysis of value chains of key European and Asian species to enhance European competitive capacity;
  4. evaluation of social acceptance of aquaculture products developed in WP1 and WP2.
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### WP4

Eco-Intensification of Aquaculture: this is an RTD WP, with the overarching goal of combining outcomes from WP1, WP2, and WP3, i.e. primary and secondary sectors of production, and policy constraints. We will:

1. assess economic impact of GAIN at the farm and whole value-chain levels;
  2. develop and apply a comprehensive sustainability index, based on environmental and economic indicators;
  3. develop tools and initiatives for transferring the knowledge generated by GAIN to citizens, policy makers and market operators.
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## WP5

Professional Development: this is an impact WP, with the overarching goal of capacity building, i.e. providing training for a new paradigm of aquaculture eco-intensification. We will:

1. enhance the capacity of aquaculture companies to implementing GAIN innovations;
  2. provide a solid foundation for further research on aquaculture intensification. We will accomplish this by delivering free online courses on specific topics, on-site demonstration and training courses, and organizing a Summer School. WP1 feeds into WP5.
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## WP6

Dissemination, Exploitation, and Communication: this is an impact WP, with the overarching goal of ensuring that GAIN methodologies and results are used as broadly as possible, and that a robust legacy is achieved. We will ensure our initiatives target, feed producers and food processing industries:

1. farmers;
2. policy-makers;
3. consumers;
4. scientists.

This WP will assess IPR to guarantee protection through patent applications or other measures. Activities include the wide dissemination of apps for different stakeholder groups, the Good Fish meeting, and the Affiliate Farm Programme. All RTD WPs feed into WP6.

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## WP7

Coordination: this is a cross-cutting WP, with the overarching goal of ensuring that GAIN is appropriately coordinated and managed at all levels, including external interactions our Scientific Advisory Board (SAB) and Reference User Group (RUG), and all other external connections. We will:

1. put in place a well-tested management structure, with clearly-defined responsibilities and accountability;
2. Develop and implement a robust Data Management Plan;
3. ensure all GAIN work areas develop in a consistent and coordinated form and are appropriately communicated;
4. guarantee that the overall outcomes of the project are more than the outputs of a set of WPs, and that the legacy of this research will endure and expand.