



**Programme: FP7 Cooperation**  
**Theme 2 Food, Agriculture, Fisheries and Biotechnologies**

**Deliverable N° 18**

**Methodology and Templates for Knowledge Transfer (WP7)**  
**– knowledge delivery plan, multiplier interactions**

Project Acronym : AQUAINNOVA

Project title : Supporting governance and multi-stakeholder participation in aquaculture research and innovation

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## II. Summary of the Deliverable

### 1) Objectives:

1. To develop the methodology, tools and strategies required to ensure effective transfer and uptake of the Aquainnova outputs - including collected knowledge from other EU-funded research projects as well as the results of the Aquainnova project.
2. To customise the relevant research outputs (e.g. products, methodologies, findings) so that these are ready for uptake by targeted end users.
3. To develop and make use of the latest tools, resources and communication channels resulting in cost effectiveness and maximum impact.

### 2) Rationale for the Deliverable:

Knowledge resulting from research projects in general and those specifically collected by Aquainnova could play a pivotal role in the sustainable development of aquaculture and the use of our natural resources, in knowledge-based governance and thus as a major source of competitive advantage for business and other economic activities. However, capturing knowledge and making sure that it can and will be used by relevant users is, historically, a big challenge that is widely recognised.

The Aquainnova methodology developed is based on the Knowledge Management methodology developed successfully by the MarineTT project (FP7 Coordination and Support Action – Grant Agreement 244164).

The methodology consists of the following steps:

**1) Collect and Understand;** setting up protocols for collection and validation of aquaculture related Knowledge Outputs from projects funded by FP6 and FP7 frameworks.

**2) Analyse & Consult:** the use of experts to identify knowledge with high potential impact if applied to the industry as well as the identification of target end-users

**3) Transfer & Connect:** identifying the most suitable methods for transferring knowledge with a view to ensuring that any knowledge transfer results in uptake and exploitation and carrying out that transfer.

### III. Knowledge Management Methodology

The Knowledge Management methodology applied in the Aquainnova project is based on the methodology developed originally in the FP7 MarineTT project and focuses on Knowledge Outputs;

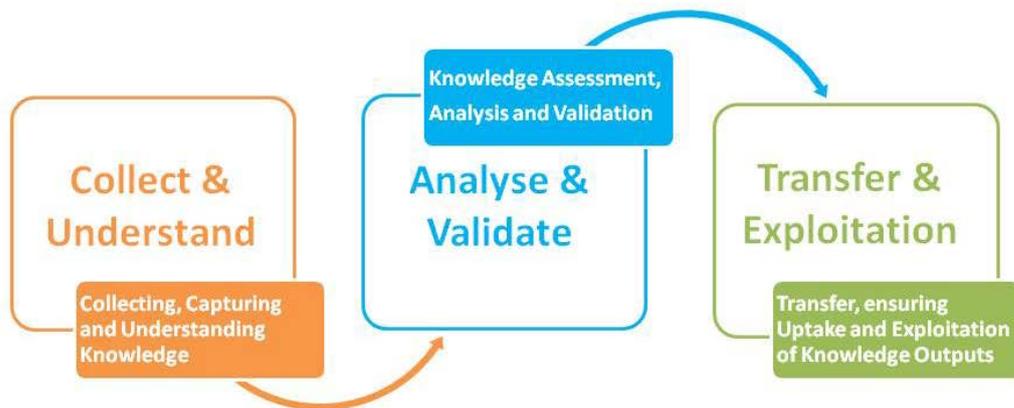
A "Knowledge Output" for the purposes of this project is the term used to describe a unit of knowledge that has been generated out of a scientific project. It is not limited to de-novo or pioneering discoveries but may also include new methodologies/processes, adaptations, insights, alternative applications of prior know-how/knowledge

(Definition developed by AquaTT in the context of Knowledge Management in the MarineTT project).

Aquainnova recognised that it is critical to capture, understand and analyse the knowledge outputs generated by research so as to demonstrate the wider value and benefit of these outcomes to both society and economic interests in Europe.

In order to gather knowledge that can be transferred the MarineTT Knowledge Management Methodology was adapted and comprises three key steps;

1. Collect & Understand
2. Analyse & Consult
3. Transfer & Connect



## A. Collect & Understand

The 'Collect and Understand' phase aimed to gather the Knowledge Outputs from aquaculture-related projects, funded under FP6 and FP7, so as to obtain an understanding of these outputs, to identify the (potential) end user and the (potential) application(s) of the knowledge.

Projects for inclusion in the Aquainnova process were chosen on an individual basis dependant on whether a significant part of the research had a relevance to the aquaculture industry.

- A total of 121 Aquaculture research projects funded under FP6 and FP7 were reviewed for Aquainnova.

A collection tool in the form of an excel sheet was developed by Aquainnova for Project coordinators to record specific information on the Knowledge Outputs generated by their project.

Within Aquainnova, knowledge outputs are defined as a unit of knowledge that has been generated out of a research project, it is not limited to de-novo or pioneering discoveries but may also include new methodologies, adaptations, and alternative applications of prior know-how/knowledge.

In order to make the information collected in the survey clearer, the content was reformatted into a standard template named a Knowledge Output Table (KOT). The KOT was designed to have clear fields that captured the most important characteristics of the Knowledge Output. Furthermore, additional fields focused on crucial Knowledge Transfer elements including:

- potential end-users,
- Intellectual Property Rights associated with the KO,
- details of the knowledge transfer of the KO to date and its status (completed or not).

### ***Annex 1 contains the KOT Template for Aquainnova.***

Using this process over 300 Knowledge outputs were identified by Aquainnova. Potential end-users of the Knowledge outputs include industry, the Scientific Community, Policy makers, Educators, Environmental Managers and others, including Civil society organisations and representatives.

These completed KOTs were also used as information for the development of Technical leaflets for each project, which were used as a tool for knowledge transfer and dissemination. These were published online and also provided as compilations of projects relevant to sectors (e.g. freshwater), relevant to topics (e.g. recirculation technology) and relevant to Thematic components of aquaculture (e.g. health).

## B. Analyse & Consult

Knowledge Outputs captured by the 'Collect & Understand' phase were then advanced to the 'Analyse and Consult' phase which involved a review and further analysis of the knowledge by a panel of External Experts. The aim of this phase of the Knowledge Management and Transfer Method was to have the potential applications of the Knowledge Outputs and the target audiences and their needs carefully assessed using experienced expertise. These people were drawn from the three main end-user disciplines in Aquaculture (Research, Industry and Policy).

In Aquainnova, the following experts were engaged in this exercise, which was completed in 2 separate meetings:

- 1) Dr. Panos Christoflogiannis (Industry), Dr. Jan Reid Hole (Industry + Academia), Dr. Richard Fitzgerald (Academia), Dr. Gill Marmelstein (academia and training)
- 2) Mr. Courtney Hough (policy and industry), Ms. Cliona Ni Cheallachain (Industry), Mr. Alistair Lane and & Dr. Gill Marmelstein (Research Community), Mr. David Murphy (Policy and Training).

The External Expert validation process consisted of a desk-study exercise to review the combined thematic Knowledge Outputs (KOs) remotely, followed by an Expert Validation Meeting. Experts were asked to

- Highlight any fields associated with the KOs which were unclear, needed clarification and to provide additional comments.
- Confirm that the proposed identified end-user(s) and application(s) were correct
- To provide more detailed information on end user(s) and specifically to identify industry sectors, companies or academic environments that might benefit from the KOs
- Identify the potential impact of the KOs on the End/Next User and identify the knowledge as **low, medium** or **high**

Following the review, experts were asked to select their top 10 Knowledge Outputs (based on expert opinion/perception) and to provide specific details on their Top Ten knowledge outputs including;

- The potential impact of the KOs on the next/end user from an economical, social and environmental perspective scored as low, medium or high.
- Specific advice or instruction on how the KOs could be transferred to the specific next/end user(s).

## C. Transfer & Connect:

Once the knowledge has been 'captured' correctly and has undergone analysis and validation, the process of transfer can begin. The ultimate goal of Knowledge Transfer is to ensure that it results in uptake and exploitation of the knowledge.

Successful Knowledge Transfer is dependent on identifying the most suitable methods of transfer; however this requires significant investment of time and resources which needs careful planning and design from the beginning of the work.

## IV. Due Diligence

The first step in the Aquainnova Transfer Methodology was "Due Diligence". Due Diligence was an essential step where a higher in-depth analysis of each KO was carried out.

This step was essential since, up to this phase, all KOs were identified as having potential based on the information in the KOT. However the KOT content is limited and it was essential to validate key characteristics of each KO before developing a tailor-made knowledge transfer plan and ultimately carrying out transfer.

Six key steps in the Due Diligence phase include:

1. Verify the accuracy of the "Knowledge Output"
2. Determine willingness of Knowledge owner(s) to collaborate
3. Clarify Intellectual Property rights (IP)
4. Confirm End User(s), their capacity and motivation for uptake
5. Map "Value Chain" of Knowledge Output
6. Assess potential to cluster knowledge or standalone for transfer

The aim of the Due Diligence exercise was to identify the most appropriate end users of the knowledge, to investigate the best method for transfer to the end users and also to find out whether there were any barriers that would affect the transfer potential of the knowledge output and ultimately the uptake and impact of the knowledge.

## V. Coordinator Interviews

It was decided that the most efficient way to carry out several aspects of the Due Diligence for the projects identified was to use telephone interviews where possible. Coordinators were initially contacted via email and requested to take part in a scheduled phone interview. Where it was not possible to contact the coordinator of a project, contact was made with other partners in the project consortium.

Where connection was made, the Aquainnova team conducted phone interviews using a set of pre-scripted questions in order to ensure completeness. However, as this was an iterative process, the prepared script was used as a guideline only and individual interviewers were free to engage interviewees more directly when appropriate and to follow up on details revealed in the responses. The skills of the interviewer were essential in answering all the Due Diligence questions.

Key objectives of interviews included:

- to address any concerns or questions which had been posed by the expert reviewers during their analysis
- to engage project coordinators in the Aquainnova knowledge transfer process
- to confirm that the details of each Knowledge Output accurately described the current status of the knowledge
- to gather as much additional information as possible on the high-potential KOs
- to establish how up-to-date the KO was and whether it had been superseded by later work or projects – this was particularly important for FP6 projects which had ended some years previously.
- to explore any recent knowledge transfer activities previously undertaken by the researcher and to record any barriers which may have been encountered.

Once Due Diligence (Step 1) was complete – the Aquainnova Transfer phase consisted of two further steps:

### **1. TRANSFER PLAN & TRANSFER**

- Develop a transfer strategy
- Select transfer medium(s) and channel(s)
- Produce transfer resources
- Carry out tailor-made knowledge transfer

### **2. ASSESSMENT OF IMPACT**

- Measure short term impact of transfer activity
- Identify indicators of long term impact of transfer activity

## VI. Transfer Plan and Transfer

A list of Case Study projects for transfer where KOs were considered to be eligible for targeted Knowledge Transfer was established from the expert review. Case Studies were undertaken in order to illustrate how tailor-made knowledge transfer can enhance the uptake of results and impact from publicly-funded research.

Targeted knowledge transfer is a complex process and requires considerable investment of resources if it is to be effective.

In some cases, building upon the work carried out in the Due-Diligence required further engagement with the coordinators so as to carry out a more in-depth analysis of the knowledge outputs.

Aquainnova team members also spent a significant amount of time per case study investigating the value chain of the targeted end-users using their personal expertise as well as the AquaTT and EATiP extensive network of stakeholders.

## VII. Assessment of impact

Aquainnova recognised that for impact to be measured, the short-term impact and expected long-term impact of each project must be identified.

- Short-term impact will be determined on an individual case study basis and the metrics used will depend on the specific transfer activities undertaken as a result of the recommended tailored transfer action plans.
- Long-term impact will be based on the projected potential per case study, as the time scale for long-term impact means that it would be impossible to accurately measure within the timeframe and resources available to most projects.

## VIII. Multiplier Interaction

Many different infrastructures exist to support the Aquaculture industry (e.g. associations, innovation relay centres, development agencies, regional business bodies, inter-branch & producer organisations, consultation bodies, conferences & trade-shows etc.) that could be classified as potential multipliers – this observation pertains to knowledge transfer due to their mandate, resources or capacity. Nonetheless, effective and consistent knowledge transfer from research is regularly seen as lacking.

There are a variety of reasons as to why transnational knowledge transfer has not been effective in using these multipliers e.g. lack of awareness of transnational knowledge, lack of awareness of knowledge, lack of awareness of potential of knowledge, lack of capacity, lack of consistency in approach, infrastructure or competence to customise or simply transfer knowledge.

Where appropriate, Aquainnova will engage with relevant multipliers to expand on its knowledge transfer activities. This action adds considerable value since the multipliers will gain credit for transferring useful knowledge to their customers and may become more willing and capable of participating in knowledge transfer exercises in the future; this may extend to supporting transnational initiatives - like EATIP and other Technology Platforms - in the future.

Feedback has shown that consumer organisations in different European regions are interested in receiving more detailed information, but on differing topics. Using the TLs developed previously by PROFET Policy and the new TLs generated in Aquainnova, special compilations will be made that respond to those needs.

## IX. The European Aquaculture Technology and Innovation Platform (EATiP)

In order to reinforce the research and innovation processes that are required within a modern and developing Europe, the European aquaculture sector has established the European Aquaculture Technology and Innovation Platform.

EATiP covers a diverse range of challenges that are vital to the sector's future growth and innovation. Specifically, these challenges will be met by generating major membership-endorsed outputs, ready for dissemination to other stakeholders and wider society. These outputs included a long term Vision, a Strategic Research and Innovation Agenda as well as a plan of Action for implementation for European Aquaculture 2030.

In order to properly identify the challenges to progress and the factors for success EATiP, supported by Aquainnova, adopted a multi-stakeholder and multidisciplinary discussion process. This included expert groups, sector specific workshops, and online consultation that provided validation and review from the larger European aquaculture community.

The sector-specific workshops were developed to contribute to the overall Aquainnova Knowledge Transfer methodology in two ways.

1. It would provide a platform to raise awareness of EATiP and the plan to develop a Vision for 2030.
2. It would create the opportunity to transfer knowledge of current and recent aquaculture related research results funded by the EU, collected and analysed within Aquainnova, to a range of stakeholders in a specific sector.

***Please also see deliverables 46 (Knowledge Prioritisation) and 47, Report on knowledge transfer carried out.***

## X. Annex 1 – Details of Knowledge Output tables

The Knowledge Output tables were developed with the following information for assessment

- Project (Title/Name)
- Framework Programme (e.g. FP6)
- Knowledge ID Number (internal reference)
- Short Title of the project
- Knowledge Description
- Knowledge Type (e.g. prototype, product...)
- Marine/Aquaculture Sectors to potentially benefit
- End User & Application (e.g. industry & function)
- IP/Confidentiality and other IP issues (identification of IP associated to project) and whether confidential or not
- Details available of IP/ Confidentiality and other IP issues? (e.g. Yes/No/NA)
- Publically Available (Yes/No & comments)
- Output Complete (Yes/No)
- Output Completion Details
- Knowledge Transfer (actions) carried out by the project

These data were then assessed by the Expert Panels.

