



## **Technology Transfer**

### **1<sup>st</sup> panel meeting**

### **Report**

**2nd February 2011**

**Mid-Norway European Office, Avenue Palmerston 3, 1000 Brussels**

**Chaired by: Adi Kellermann and Torgeir Edvardsen**

The meeting participants presented themselves and expressed their expectations regarding the meeting.

Adi Kellermann welcomed the participants, thanked the Mid-Norway office for hosting the meeting and presented the MARCOM+ initiative's background and goals. The agenda was presented and accepted by the group.

John Sweetman: The MARCOM+ initiative may run the risk of becoming overcomplicated by touching upon too many details. Realistic targets should be set so that the communities involved could see where this massive initiative could create links with the industry with a view of creating jobs.

Torgeir Edvardsen presented the role of the MARCOM+ Technology Transfer Panel (available in attachment) and the main project objective - to investigate the most

appropriate mechanisms to support technology transfer by identifying cross-cutting synergies with respect to research- industrial application. The policy context of the MARCOM+ initiative (from the Lisbon Agenda to the Innovation Union 2020) was also presented.

Technology Transfer seems not to be the best term to use as there are strong both ways interconnection between the research centers and the industry (the three-hump model of basic-applied knowledge turning into technology development). Knowledge Transfer would better describe these processes.

Mapping of the technologies where the European marine and maritime sectors are strong

Mario Dogliani: In Italy technology transfer or cooperation with industrial research means speaking of transversal issues. Europe is very strong on highly technological ships; strong competence is also acknowledged on the following 3 large priority lines (where cooperation between marine and maritime is essential):

1. The fishing systems of the next millennium (knowledge on modern fish processing);
2. Shipbuilding interior standards, a long chain of nano and biotechnologies;
3. Ballast water exchange issues – industry did not know about the issues from the marine side around 10 years ago and there is a large room for the industry to benefit from marine scientists if finding solutions together is organized in advance. It is difficult and time consuming for the industry to find the right expertise within the academic world so the Italian National Research Council and the Mediterranean Maritime Platform organized a switchboard to the research world. That switchboard informs the industry which research centre / university can tackle a specific problem. In Italy it is also understood that the industry should not really cope with research but should cooperate / subcontract researches when innovative solutions are sought.

Leif Sunde: European aquaculture industry links with aquaculture in Asia, in this area a lot of strong RTD and industry companies have been established, it is a global industry with global alliances. Europe's strengths are acknowledged in specialized technologies for this emerging industry. This gives us the opportunity to take lead in advanced sea-based fish farming technologies.

Adrianna Ianora: Aquaculture research and relevant commercialized technologies constitute Europe's advantage in a global scale. Europe can be regarded as the world leader in specific areas.

Frank Roland: The MARCOM+ main task is to provide input to the policy makers: Europe has to further strengthen its strengths to be competitive on the global market but the question is what challenges are in front of us. The technology transfer should be called knowledge transfer as many things coming from the marine sector is knowledge not advanced technologies. So interaction mechanisms between the two sectors should be discussed. A special emphasis should be put on knowledge transfer between the marine and maritime science communities.

Ana-Teresa Caetano: It's not just the intersection but we need ways to solve complicated problems like the ballast waters – an overarching study of these issues should enable to see why a specific problem has not been solved yet and what kind of legal barriers have to be overcome.

John Sweetman: The Marine engineering sector developed many innovative solutions that were transferred (by the Norwegians) and applied in the Mediterranean. These technologies helped production of fish in the Mediterranean. On the other side different models were developed in the Mediterranean and sent to Norway to apply for cod. There intersection was there, what is missing are effective mechanisms to sustain that industry in the Mediterranean. The challenge is where do you take what we have today and inject it into the communities in order to create more jobs. Academia requires peer-reviewed publications; the industry needs industrial PhDs to produce solutions. The grand challenge is industry applied research has to be supported. We should organize good forums to solve the applicable knowledge solutions. If you locate specific topics to small functional groups which are applied for industry solutions development and link the industry and research it would be a practical way to deal with that.

Marieke Reuver: The MarineTT project (European Marine Research Knowledge Transfer and Uptake of Results) is an example of such action. It identifies applicable knowledge (from marine related FP6 and FP7 research projects) and tries to bring it to the right end-users. It is a FP7 project which devised an evaluation mechanism to identify research outcomes with the most potential for exploitation and then connects and transfers the knowledge to end users who can make best use of those outputs.

Willem Laros: When the communities understand what the needs are, then we will know the niches where maritime industries are strong and where the need for qualified people emerges. We should forget competing with mass production in Asia but focus on specific niches. We need to improve the ways of transferring ideas from the

academic world to the industry and questions from the industry to the academia. There should be a need from the society first. Let's not look for an overarching cooperation but for specific areas of interest.

Achim Kopf: Specific niche technologies need to be further developed. They will give Europe a unique selling position (like marine renewable energies do). Asia is looking towards Europe to adopt key technologies.

Ana-Teresa Caetano: the RTD Commissioner plans to shift part of the remaining FP7 funds to fostering innovation (participation of industry and SMEs within this programme). This was envisaged in the Innovation Union document and will be proposed for the work programme 2013 (the last FP7 call and a bridge between FP7 and FP8). An FP8 guiding document (communication) will be issued in April and subject to public consultation.

Frank Roland: obstacles: Europe needs specific legislation that would make it information flow easier: what knowledge / technology is available. For the time being this information seldom reaches the majority of the SMEs. We need to think about sustainable instruments (not depended on short-time funding from FPs). There is a need for ONE database for research results. The Commission has the lists of projects but the results need to be disclosed and disseminated.

Victor Oiestad made a presentation 'Super-intensive fish farming technology – an innovation case study' (available in attachment).

Frank Roland: This is a good example in transferring knowledge to the end-users (food supplying companies).

John Sweetman: There are good European legislation examples concerning terrestrial food animals and we need relevant regarding the emerging aquaculture industry.

Inventory of areas/issues where input from marine science is needed:

- Underwater noise, impacts on nature (silent ship);
- Impact of climate change on transport;
- Currents, water column properties and safety of transport;
- Building with nature, estuaries (alternative to dredging, materials and structures learned from nature);
- Hull surfaces, fuel efficiency, use of currents for routing, anti-fouling;
- Northern shipping routes and requirements for shipbuilding, other operations;
- 'Green ship';
- Logistics around offshore wind parks (from production to dismantling);

- Materials for off-shore structures, impact on environment, operational requirements (e.g. corrosion);
- Shipping: loads on ship (safety of operations);
- Offshore installations and use by mariculture;
- Ballast water treatment (2014 and 2016 regulations);
- Fish diseases;
- Feeds in mariculture and its resources (competition and sustainability);
- Future fisheries fleet;
- Marine spatial planning
- Marine mining;
- Remote and submersed operations, automatic facilities;
- Education and skills development of offshore operations staff;
- Marine biotechnology including cultivation of living resources – applications for medicine;
- Bioinvasions as related to various sectors (marine and maritime).

Adi Kellermann reported the results of the innovation session of the 1<sup>st</sup> MARCOM+ Open Forum. A SWOT analysis of European marine and maritime research sectors had been made there. The question ‘what are the mechanisms to capitalize all these strengths’ was raised. It would be useful to make an inventory of the strengths and make it available to potential ‘customers’.

Frank Roland: we have to make use of the existing competence – a competence matrix to go to when knowledge is needed is missing at the moment. It is important to realize that customers look for a specific partner on an organization rather than a network level.

Adrianna Ianora: A mechanism for academia and industry to work together should be introduced – facilitating interest in infrastructure where competences come together. We have to exploit the possibility of creating infrastructure to make it available for academia and industry to work together. Exchange programmes to tackle certain problems are needed.

Mario Dogliani: MARCOM can develop a number of switchboards between potential customers and networks / individual expertise centres / experts.

Frank Roland: What is missing is contacts in the marine world to find end users to whom one has to speak when having an idea on modern aqua farm for instance. Thus

we should focus on marine / maritime links, not on academia / industry partnerships. These exist and operate well on national basis.

Adrianna Ianora: very little time for academics is allotted for working with the industry. In most European countries there are no incentives for scientists to collaborate with the industry and that is where the gap between Europe and the US comes from.

Courtney Hough: Research in individual institutes is managed on a project basis rather than following a specific theme. Therefore it is more publication-oriented rather than continuity oriented. This can reduce the quality of European research. It's good to give clear incentive for both sides. Databases also suffer from lack of continuity as they often 'die' when a project is finished.

Frank Roland: MARCOM needs a thematic network focusing on a specific theme / project. This approach turned out to be extremely helpful in previous framework programmes.

Leif Sunde: If we could try to focus on a specific topic and have a more specific goal (how we can improve with this issue) then it would seem attractive to the industry as well as to related scientific disciplines. This could be a model for MARCOM – to do something new and very specific. This will attract dedicated persons and enable specific results to be delivered.

Adi Kellermann: When it comes to scientists people are not brought up with communicating results of their research. European programmes bring the socio-economic scientists to the marine/maritime research community and put brains together. The next incentive is handing data to long-term data basis, what MARCOM could do when providing recommendation to include science communication experts in what scientists are doing. In order to achieve more societal benefits a selection model is recommended (venture capitalists model of testing projects and selecting the ones with the highest potential).

Courtney Hough: A productive mechanism of cooperation has to take into consideration the fact that an average life of a European SME is 12 years. So one has to consider how to create an environment within which an innovation can be realized and adapted by the industry in a long run.

Willem Laros: Marine and maritime communalities are so broad and diverse – cooperation will work only when common interests are found and described. We

should identify 4-5 areas of common interests and accept that the majority of themes are and will not be covered. Some criteria of theme selection should be jointly agreed upon. We should convince the Commission to limit ourselves to specific issues.

Leif Sunde: Selection of themes is important. A crucial problem in innovation processes is SME participation in research. However this way of thinking excludes larger companies (which are often more effective than SMEs, and can input the processes in a better way or lead the smaller companies).

Frank Roland: All the created networks should be built on a 'bottom-up' basis – this makes it easy to include specific companies and industry when a consortium is built. Such initiatives have a high chance to continue when Commission financing comes to an end.

Adi Kellermann: The MARCOM group will be expected to speak with one voice. In practice, this seems to be an illusion. But if we manage to get engaged in consultation process of the future Framework Programmes (it's a matter of how we establish ourselves) we can help the Framework Programmes to be more cohesive (by not making individual groups to fit in their research programmes to the calls) and thus provide better results for money.

Adi Kellermann concluded the meeting thanking the participants for their time and input. Even though our main obligation will be to report to the European Commission and provide recommendations, we should look to our communities to make sure we do our best to let the networks benefit from what MARCOM is producing.

The 2<sup>nd</sup> MARCOM+ Technology Transfer Panel meeting has been scheduled for June 17<sup>th</sup> in Brussels (Mid-Norway European Office).

Meeting participants:

- Ana Teresa Caetano, European Commission, DG RTD;
- Mario Dogliani, Italian RINA, Ministry of Transport and the Mediterranean Maritime Platform;
- Torgeir Edvardsen, European Aquaculture Technology and Innovation Platform, SINTEF Norway;
- Adrianna Ianora, Naples Zoological Station Italy;
- Adi Kellermann, Head of the ICES Science Programme, MARCOM+ Coordinator;

- Achim Kopf, MARUM Research Centre in Bremen, Coordinator of the Deep Sea Frontier project;
- Courteny Hough, European Aquaculture Technology and Innovation Platform;
- Willem Laros, chairman of the European Shipbuilding Association, secretary of Waterborne Technology Platform;
- Victor Oiestad, AKVAPLAN-NIVA Norway;
- Marieke Reuver, AquaTT Ireland;
- Frank Roland, managing director of CMT (Centre of Maritime Technology in Hamburg, Germany);
- Leif Magne Sunde, SINTEF Fisheries and Aquaculture, TEKMAR project;
- John Sweetman, SME (aquaculture industry), Greece;
- Wojciech Wawrzynski, ICES secretary for scientific cooperation, MARCOM+ manager.