

Acronym: COLUMBUS

Title: Monitoring, Managing and Transferring Marine and Maritime
Knowledge for Sustainable Blue Growth
Grant agreement n° 652690

Deliverable 7.2

Collection of Knowledge Transfer Case Studies for Promotion of Marine Science Across Europe

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AcKnowledgegement

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I. EXECUTIVE SUMMARY

Significant Identification and Collection of EC funded Marine Research has been done in past projects and COLUMBUS intends to capitalise on this effort by harnessing the knowledge within projects and transferring it. Knowledge Transfer activities were carried out by the Competence Nodes led by Knowledge Transfer Fellows.

Knowledge Transfer is a two-way, iterative process, requiring engagement and networking. It is end-user focused and requires a deep understanding of the needs of the end-user in order to tailor-make an effective Knowledge Transfer plan to ensure transference and impact occurs.

Deliverable 7.2 demonstrates how Task 7.2 of WP7 provided communication support to Competence Nodes (hosted by Aquark, Aquatera, AquaTT, CETMAR, CMT, DTU Aqua, Project Management Jülich and Seascope Consultants) in carrying out Knowledge Transfer to all end-user groups targeted by COLUMBUS: industry, policy, science and wider society..

WP7 provided communication expertise and support to enable Knowledge Fellows and Competence Nodes Leaders to run their respective communication activities and produce their respective communication materials based upon their targeted users and to ensure a stimulating Knowledge Transfer process.

In summary, WP7 supported COLUMBUS Knowledge Transfer activity through:

1. The development of guidelines as well as promotional materials and actions to enable the Competence Node leaders and Knowledge Transfer Fellows to communicate effeciently on COLUMBUS once organizing their Knowledge Transfer activities,
2. The production of promotional materials and guidelines to enable the Competence Node leaders and Knowledge Transfer Fellows to host succesful brokerage events,
3. Specific communication support and expertise provided for Knowledge Transfer activities through the development of technical briefs, and
4. The design and publication of 48 “public format” stories outlining the detailed Knowledge Transfer journey across the marine and maritime sectors (the COLUMBUS Competence Nodes)



II. INTRODUCTION

The COLUMBUS project (www.columbusproject.eu) intends to capitalise on the European Commission's significant investment in marine and maritime research by ensuring accessibility and uptake of research Knowledge Outputs by end-users: policy, industry, science and wider society.

COLUMBUS has indeed ensured measurable value creation from research investments contributing to sustainable Blue Growth - within the timeframe of the project.

In this respect, this report presents the various and complementary communication support activities and tools that have been developed and implemented to help Competence Nodes to carry out Knowledge Transfer, as well as to ensure that all Knowledge Transfer activities have been efficiently aligned with the scheduled communications activities.

More precisely, this series of activities and tools have enabled all Competence Nodes to access communication expertise by targeting specific audiences through a selected portfolio of communication channels, materials and tools; the details of which are described in this report.



III. OVERALL OBJECTIVE

The overall objective of this deliverable is to present the Communication support that has been provided to COLUMBUS Competence Nodes to support their efforts in carrying out Knowledge Transfer.

It details the support given to each Knowledge Transfer Fellow and associated Competence Node to achieve success in their Knowledge Transfer Plans and to develop a collection of stories of Knowledge Transfer activity to promote marine science across Europe.

IV. SPECIFIC OBJECTIVE(S)

As per the Grant Agreement (page 35):

“The focus of this task [has been] to provide support to each Knowledge Transfer Fellow and associated Competence Node when Knowledge Transfer plans are being developed in WP6. This task [has been] to provide input into the selection of communication channels, materials and tools depending on the Target User(s), and [worked] in conjunction with all competence Nodes to ensure coherence of all materials created and activities conducted.

This task [has been] also focusing on ensuring that the Knowledge Transfer activities were timely and planned in conjunction with communication activities.

Collecting information of Knowledge Transfer activities [have also fed] into other WP7 tasks, such as Task 7.3 ‘Brokerage events’ and Task 7.6, ‘Marine Research for a Blue Society’.”



V. SPECIFIC MEANS and ACTIVITIES

1. The “ABC” of COLUMBUS Communications Efforts

1. Overview

Run throughout and with a consortium of experts in the marine and maritime sectors, COLUMBUS WP7 has enabled each of the Competence Node Leader and Knowledge Transfer Fellow to have access to expertise and assistance in communication related activities.

This added value and expertise access, COLUMBUS has provided, has ensured that all Competence Node Leaders and Knowledge Transfer Fellows have used the most efficient means and tools to reach toward their respective targeted audiences for their Knowledge Transfer activities.

2. Process and Results

2.1 Visual identity and Branding

As detailed in the D7.1 “Dissemination and Exploitation Plan”, COLUMBUS partners have been provided a dedicated project’s visual identity with its own logo and branding.



Figure 1: COLUMBUS logo

This visual identity has been essential to build on COLUMBUS branding, an essential step for all Competence Node Leaders and Knowledge Transfer Fellows to communicate to their Knowledge Transfer’s targeted audiences under the COLUMBUS’ umbrella.

The respective logo usage rules, along with the branding requirements (e.g. EU emblem and hereunder text) have been shared with them, as this logo has been included in all project promotional material including the factsheet, website, etc.



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Figure 2: EU emblem and project’s disclosure related information



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2.2 Communications Channels: Online Strategy

Moreover, in order to ensure that all Competence Node Leaders and Knowledge Transfer Fellows could communicate efficiently toward their targeted audiences, and this to run successful Knowledge Transfer activities, the following communication channels have been secured and promoted for usage.

With a communication strategy based upon an online activity's coverage, the following tools and respective best practice guidelines have been secured:

- COLUMBUS dedicated website : <http://www.columbusproject.eu/>

In accordance to the EU Project Websites Best Practice Guidelines, the website played multiple roles as a communication resource to promote the project, its objectives and partnership, as well as serving to update interested parties on progress, results and outcomes.

COLUMBUS Competence Node Leaders and Knowledge Transfer Fellows used it as a backbone of their respective communications activities, in line with their Knowledge Transfer activities.

- Social media usage:

In order to optimize the Competence Node Leaders and Knowledge Transfer Fellows to interact with their Knowledge Transfer's targeted audiences, the consortium has been encouraged to use the social media mainstreams, with the creation of a dedicated LinkedIn group and a dedicated twitter account.

To ensure the respective partners efficient usage of these tools, specific "*best practices guide*" have been developed and shared with them, covering the LinkedIn tool and the twitter one. They also have been made available on COLUMBUS dedicated basecamp.

Please refer to this D7.6

2.3 COLUMBUS Catalogue

In addition to these, and to secure an optimal preparation and organization of Knowledge Transfer activities, the Competence Node Leaders and Knowledge Transfer Fellows have had access to the COLUMBUS catalogue.

It is composed of selected available materials and tools by audience(s) – e.g. "Science to industry", "Science to policy", and "science to society".

DESCRIPTION	CONTENT	PRECISIONS
COLUMBUS WEBSITE	General presentation of the Columbus project, its methodology for Knowledge Transfer and its partners. Latest News on the projects and upcoming events.	Reference platform / tool used by Competence Node Leaders and Knowledge Transfer Fellows to communicate on COLUMBUS and on their Knowledge Transfer activities.



COLUMBUS TWITTER ACCOUNT & COLUMBUS HASHTAG #COLUMBUS_EU	Used to communicate on Knowledge Transfer activities	
COLUMBUS BRANDING GUIDELINES	General guidelines on communication requirements and standards and use of COLUMBUS logo.	Reference document for all communication tools and activities run by Competence Node Leaders and Knowledge Transfer Fellows
COLUMBUS POWERPOINT TEMPLATE	Used for all presentations related to COLUMBUS.	Same as hereabove.
COLUMBUS LOGO	Available in white, black and RGB and in different formats (on request). Used in all partners documents when related to COLUMBUS.	Same as hereabove.
COLUMBUS FACTSHEET	General presentation of the project.	Reference platform / tool used by Competence Node Leaders and Knowledge Transfer Fellows to communicate on COLUMBUS and on their Knowledge Transfer activities.
DISSEMINATION & EXPLOITATION PLAN	Guidelines on communication activities and procedures in the COLUMBUS project.	Reference document for all communication tools and activities run by Competence Node Leaders and Knowledge Transfer Fellows
COLUMBUS COMMUNICATION STRATEGY	Details about communication objectives, messages and tools. It has been associated with an Excel file providing the complete list of tools to be developed.	Same as hereabove.
COLUMBUS POSTER	Information on the COLUMBUS project and its Knowledge Transfer methodology.	The lower left-hand quarter of the poster has been used to present a Knowledge output and its related Knowledge output process and the Knowledge Transfer's fellow related organisation
COLUMBUS MEDIA KIT	Ready-to-use texts on COLUMBUS to facilitate the partners' communication with non-scientists (e.g. journalists).	Been updated regularly, this to ensure that Competence Node Leaders and Knowledge Transfer Fellows could refer to its content to promote their Knowledge Transfer activities and outcomes

COLUMBUS TWITTER GOOD PRACTICES	Advice, good practices and tips to raise the profile of COLUMBUS online.	Used by Competence Node Leaders and Knowledge Transfer Fellows to promote their Knowledge Transfer activities and reach out toward their targeted audience(s)
COLUMBUS LINKEDIN GOOD PRACTICES	Advice, and tips to raise the profile of COLUMBUS online.	Same as hereabove.
COLUMBUS TECHNICAL BRIEF	Means of communicating the specific needs, challenges, gaps and Knowledge Outputs within each thematic node.	Used by Competence Node Leaders and Knowledge Transfer Fellows to explain the product/ technology being highlighted into the Knowledge Transfer activities.



ROLL UP BANNER	Used to illustrate one specific competence node – such as the one done for the aquaculture- and COLUMBUS	Used by Competence Node Leaders and Knowledge Transfer Fellows for some Knowledge Transfer activities
KNOWLEDGE TRANSFER PREZI PRESENTATION	Ready to use fact sheet	Used by Competence Node Leaders and Knowledge Transfer Fellows to present COLUMBUS and more particularly what stands behind the Knowledge Transfer activity.
COLUMBUS NEWSLETTER	Used by Competence Node Leaders and Knowledge Transfer Fellows to share their Knowledge Transfer activities and respective outputs with the partnership, but also with their respective target audience(s)	Please refer to D7.6 for more information on this
PRESS ARTICLES, PRESS RELEASES	Presenting the results of COLUMBUS throughout the project lifespan	Used by Competence Node Leaders and Knowledge Transfer Fellows to share their Knowledge Transfer activities and respective outputs with the partnership, but also with their respective target audience(s) Please refer to D7.6 for more information on this
PUBLICATION IN RELEVANT REVIEWS	Presenting the results of COLUMBUS throughout the project lifespan	Used by Competence Node Leaders and Knowledge Transfer Fellows to share their Knowledge Transfer activities and respective outputs with the partnership, but also with their respective target audience(s) Please refer to D7.6 for more information on this

The Competence Node Leaders and Knowledge Transfer Fellows were also invited to contact WP7 leader, Nausicaá for any specific communications tailored tools they needed to run successfully their Knowledge Transfer activities.

For instance, the Marine Governance and Management Competence Node wanted to have a dedicated leaflet to share with its targeted audiences: governance and management actors, scientists, policy-makers, and entrepreneurs (Figures 1 & 2). A four-page was thus designed and produced in high resolution in order to answer the question: “What is COLUMBUS”, “What is Knowledge Transfer”, and “What COLUMBUS can do for you”, along with an introduction to the Node’s “hot topics” (e.g. marine spatial planning and integrated coastal zone management).



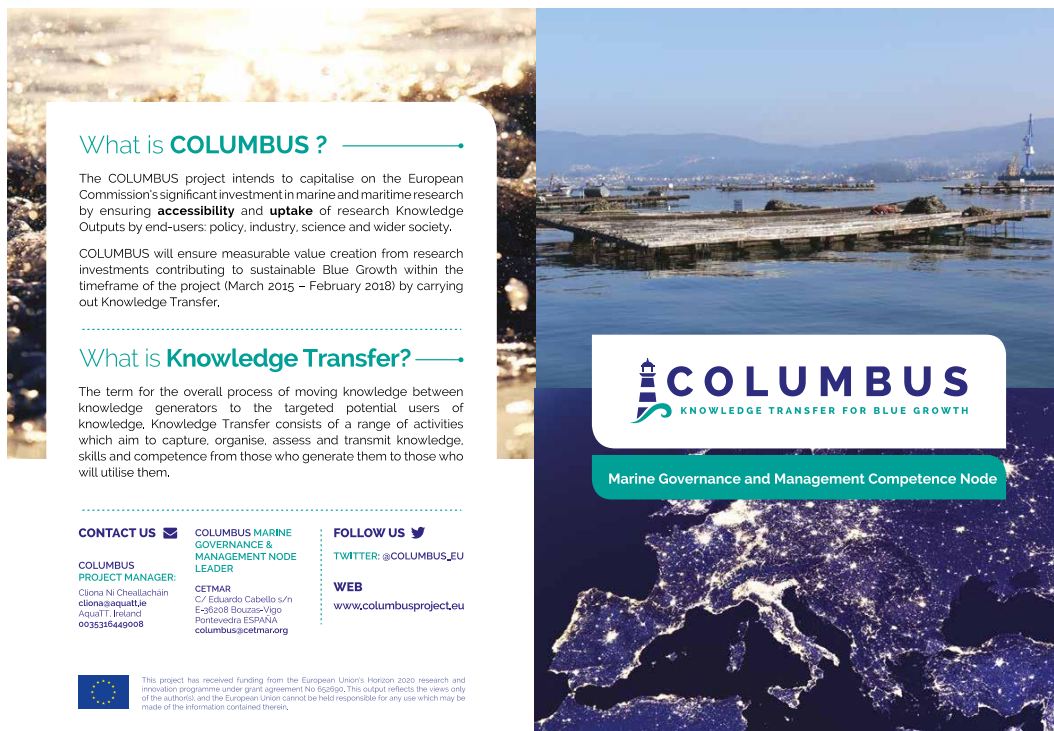


Figure 3: Marine Governance and Management Competence Node dedicated leaflet (front and back)

What can COLUMBUS do for you?



As a governance and management actor:

- Effectively **support the implementation of marine and maritime legislation relating to Blue Growth** and the Integrated Maritime Policy, including the Marine Strategic Framework Directive and Marine Spatial Planning Directive, by making relevant knowledge more accessible to policy actors.
- Participate in **impact-generating knowledge transfer** for enhanced marine governance and management.
- Get access to the **widest working overview of recent knowledge** produced by marine governance and management researchers in the EU.
- Be introduced to a **research culture where on-the-ground impact is rewarded.**

- Gain recognition from the **European Commission** through recording your interaction with COLUMBUS in interim and final reports.
- Benefit from gaining **access to peer knowledge.**

As a policy maker:

- Advise on **interdisciplinary linkages and outstanding technologies** within the field.
- Get access to **exploitable results** and the **state-of-understanding** for timely EC-funded marine and maritime research
- Engage an **evidence-based policy** in accordance with the most recent scientific knowledge.

As an entrepreneur:

- Get advice on **emerging issues and opportunities for collaboration** in research and development from COLUMBUS' overview of recent knowledge.
- Open your business to **new technological possibilities**, facilitating progress from scientific research and development to innovation.
- **Contribute to the development of the Blue economy and a Blue Society**

Figure 4: Marine Governance and Management Competence Node dedicated leaflet (insert)



Moreover, this catalogue described hereabove has been accompanied by hints and guidelines to assist all Competence Node Leaders and Knowledge Transfer Fellows to use the most appropriate communication tool based upon :

- The message they want to share
- The audience,
- The place,
- The context, and
- The type of activity.

This to ensure that their Knowledge Transfer activities has been run succesfully and this based upon their targeted audience(s).

2.4 Highlights on Useful Tools:

- Best Practice Guide on Story Telling

A “best practice guide” on story telling has also been prepared and shared with the Competence Node Leaders and Knowledge Transfer Fellows . Beyond writing stories on Knowledge Transfer activities, this guideline has enabled the Competence Node Leaders and Knowledge Transfer Fellows to develop needed pitches for their respective Knowledge Transfer related activities.

- Knowledge Transfer Methodology Movie

In order to present COLUMBUS methodology for Knowledge Transfer activities a dedicated movie has been produced.

Details are available in the D7.2’s Annex section.

- Focus on the COLUMBUS Presentation Movie

COLUMBUS Competence Node Leaders and Knowledge Transfer Fellows have showcased at most of their knowledge transfer activities, or share beforehand with their targeted audience(s), this general presentation movie produced to promote marine research towards a Blue Society, Beyond advocatinh on the importance of marine research and its value creation for society , it positively illustrates the impact of research use in people’s daily lives .

In this respect, it has provided a great incentives as well for Competence Node Leaders and Knowledge Transfer Fellows to encourage their audience(s) to join their Knowledge Transfer activities.

Details are available in D7.6.

➔ In brief, all of these communications items have ensured that COLUMBUS Competence Node Leaders and Knowledge Transfer Fellows had the most efficient tools to run succesfully their Knowledge Transfer activities.



2. Brokerage Events

The production of promotional materials and guidelines have been run to enable the Competence Node leaders and Knowledge Transfer Fellows to host successful brokerage events,

They include:

- Leaflet
- Flyers: "Save the Date", Agenda
- Posters
- Roll-ups
- Booth wall
- Prezi Presentation on COLUMBUS and Knowledge Transfer.
- Media Kit
- Brokerage Event Best Practice Guide

2.1 Leaflet

- The COLUMBUS General Presentation leaflet

COLUMBUS Competence Node leaders and Knowledge Transfer Fellows have used this leaflet at Knowledge Transfer activities by handing it out to their Knowledge Transfer participants.

This four-pages leaflet indeed introduces COLUMBUS: the project, methodology, and the consortium, and has been printed in high resolution.



Figure 5: COLUMBUS Leaflet

2.2 Flyers

2.2.1 Save the Date(s)

COLUMBUS Competence Node leaders and Knowledge Transfer Fellows have handing out, distributed electronically, and shared on their respective online communication channels (website, social media...) various "save the dates" of events of interest in link with Knowledge Transfer activities.



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2.2.2 Agendas/ Programmes

COLUMBUS Competence Node leaders and Knowledge Transfer Fellows have handing out, distributed electronically, and shared on their respective online communication channels (website, social media...) various events' agenda in link with Knowledge Transfer activities.

Both the "save the date(s)" and "agenda/ programme (s)" have been produced in high resolution for printing needs, and also uploaded on COLUMBUS dedicated website, and posted on its respective social media mainstreams. There are available in D7.2's Annex.

2.3 Poster

A poster "Knowledge Transfer to Increase the Impact of EU-Funded Marine & Maritime Research" has been developed for a general presentation of the Columbus project that COLUMBUS Competence Node leaders and Knowledge Transfer Fellows could hand out to their Knowledge Transfer activities' respective participants. It has been indeed printed in high resolution.

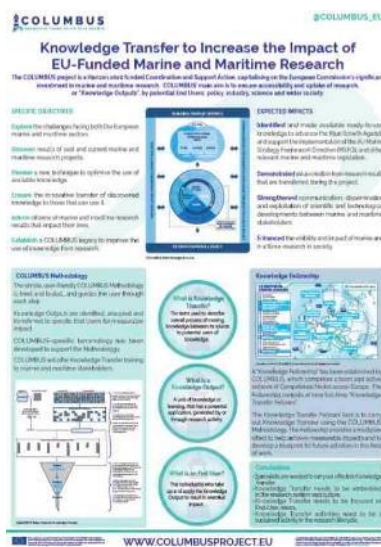


Figure 6: Knowledge Transfer Poster



2.4 Roll-ups

As indicated within the catalogue section hereabove, two different roll-ups have been produced, printed in high resolution, and used by some of the COLUMBUS Competence Node leaders and Knowledge Transfer Fellows at Knowledge Transfer activities. They are

COLUMBUS General Presentation



Figure 7: General Roll Up

This roll-up has been used to illustrate COLUMBUS at the Atlantos Brokerage event.

Aquaculture Dedicated Roll-Up



Figure 8: Aquaculture Roll Up

This roll-up has been specifically designed for the European Aquaculture Society annual conference (October 2017) to illustrate COLUMBUS' aquaculture node on COLUMBUS booth where knowledge transfer related activities have been run.



2.5 Booth wall



Figure 9: Booth Visuals

COLUMBUS Competence Node leaders and Knowledge Transfer Fellows have taken advantage of this wall and booth designs - designed for the COLUMBUS dedicated 2017 European Maritime Day (EMD) booth- to indicate their participation to this unique event, where knowledge transfer activities (side-events) have been run. Its design has also been shared with COLUMBUS Competence Node leaders and Knowledge Transfer Fellows to enable them to use the graphics when needed.

2.6 Prezi Presentation on COLUMBUS and Knowledge Transfer

A prezi presentation has been developed, and produced into high resolution to present the Columbus project in an interactive way. It has been used during conferences and Transfer activities.

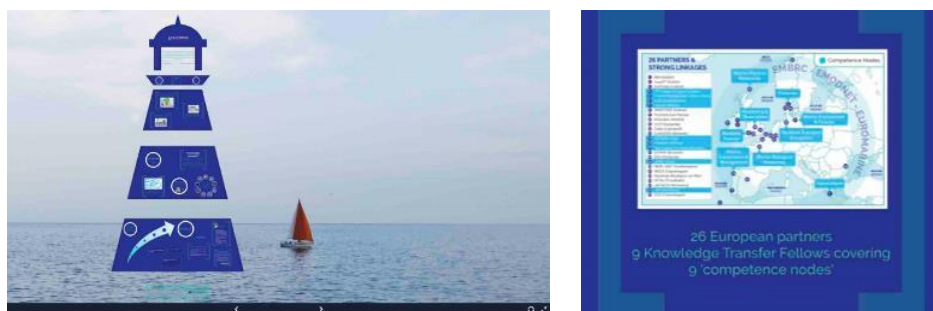


Figure 10: Prezi Presentation

2.7 Media Kit

A dedicated COLUMBUS media kit has been produced and shared with the COLUMBUS Competence Node leaders and Knowledge Transfer Fellows to originally assist them into promoting COLUMBUS within their respective media stream. It has been used furthermore to promote knowledge transfer activities toward targeted audience(s) as well.

This kit has been regularly updated and made available on basecamp. Its content is available in D7.2's Annex.



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2.8 Brokerage Events Good Practice Guide

In order to assist best COLUMBUS Competence Node leaders and Knowledge Transfer Fellows, and more particularly the ones in charge of organizing the brokerage events, a dedicated “Good Practice Guide” has been made available. Its content is available in D7.2’s Annex.

2.9 Specific Expertise and Communication Related Assistance Activities

2.9.1 General Procedure

Nausicaá offered to COLUMBUS Competence Node Leaders and Knowledge Transfer Fellows assistance with communication support in:

- Identifying the respective audiences, messages, and developing rough texts
- Designing template design with images
- Suggesting the most appropriate and efficient communication channels

In order to ensure that all COLUMBUS Competence Node Leaders and Knowledge Transfer Fellows’ communications needs could be met, a template was shared with them.

This template “communication tools order form” could be filled out by the COLUMBUS Competence Node Leaders and Knowledge Transfer Fellows and sent back to both AquaTT and Nausicaá, along with a description of the Knowledge Transfer process and Knowledge Outputs.

Photos and references were also requested for such assistance.

Once received, the offer was reviewed by the applicant and the competence node leader :

1. The offer was then reviewed by AquaTT for validation
2. The tools were created
3. The tools were then delivered to the applicant with in copy AquaTT for final validation
4. Tools and actions were then carried

2.9.2 Brokerage Events’s Related Assistance

Nausicaá was in contact with all brokerage events organizers in order to offer its communication assistance when needed.

For instance, Nausicaá provided its assistance to ensure that materials – such as save-the-date flyers for the annual conferences, factsheets, the Industry DataGuide publication- reached the brokerage event’s organizer. Assistance was also provided on demand with the preparation of some powerpoint presentations,



and on designing and preparing the dedicated COLUMBUS booth for the European Aquaculture Society's annual conference (October 2017).

The events were promoted on the COLUMBUS dedicated website, and respective social media mainstreams.

In this respect, a brokerage event [dedicated newsletter](#) was produced, in order to better identify and highlight the selected brokerage events ¹run under COLUMBUS. The other newsletters produced and disseminated throughout COLUMBUS lifespan have also promoted the scheduled brokerage events, and shared its activities report. Please refer to D7.6 for the newsletters.

¹ COLUMBUS deliverable D7.3



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3. Specific Communication Support & Expertise for Knowledge Transfer Activities: Technical Briefs

3.1 Description

The technical brief is a tool provided to the Knowledge Transfer Fellows in order to support their Knowledge Transfer activities. It presents the Knowledge Output in a targeted manner. Together with a description of the Knowledge Output, it provides information of interest to the target or end user, such as the services offered (where relevant) or demonstrating how a Knowledge Output could be useful to or applied by the respective potential user.

This format has shown its great efficiency for broker-to-user and business-to-business meetings and brokerage events.

3.2 Guideline

In order to help Knowledge Transfer Fellows prepare the needed content for the one page tool, a dedicated Best Practice Guide has been prepared and shared with them: “the Knowledge output marketing: technical brief”.

It reminds them of the role of the technical brief and how it can facilitate their respective Knowledge Transfer activities, by highlighting the selected technology/innovation and its respective added-value for the end-user.



Figure 11: Technical Brief Best Practice Guide

3.3 Content

In this respect, one important rule that is being shared is to *"keep it simple, avoid acronyms and technical vocabulary"*.

The shared guideline also provides a suggested structure for the Knowledge Transfer fellow to organize and make sure the respective information is inserted in this tool.

It includes:

- **Headline Grabber**, used to catch the target user's attention in a few words.
- **Introduction & Background**, providing a background to the covered technology/ innovation as the reason(s) the targeted user could take advantage of this Knowledge output presented as a new product, Knowledge or functionality.
- **Target User / Potential end-user need**, highlighting the issue/challenge being solved for the targeted user or potential end-users, as well as the need(s) it fulfils.
- **Short Description**, providing a description of the Knowledge, functionality or product, responding to the questions "What does your product enable/do?" "What are its features?" "What is unique about it?"
- **Target Segment & Business Model, by identifying** the targeted audience and how it will create an interest or a profit (or in case of a non-profit model, "how does it create value or customer satisfaction)?"
- **Implementation**, explaining in a concise way what does it take to implement the solution or product, e.g. high-level summary of activities, resources required, time lines, etc.
- **Call to Action**, encouraging the reader to take the expected action such as picking up the phone to call you, going to the dedicated website for more information, encouraging them to do something and make it worth their while.
- **Logos & Disclaimers**, recalling the usage of the COLUMBUS logo and the EU flagship in all your communications.

3.4 Some Concrete Examples

Out of the eight marine and maritime sectors covered by the COLUMBUS Competence Nodes, five took the opportunity to have a technical brief developed to illustrate a Knowledge Output to be presented to end-users at specific meetings.

3.4.1 Aquaculture

The Knowledge Transfer fellow, Aquark, contacted Nausicaá (WP7 leader) to get three specific technical briefs to use during business-to-business meetings. They were:



- **ABALONET-** “unlocking the potential of multitrophic mariculture: abalone culture along with fish sea cage culture”



Unlocking the Potential of Multitrophic Mariculture: Abalone Culture Along with Fish Sea Cage Culture

Columbus will organise a workshop on Abalone farming and Integrated Multitrophic Marine Aquaculture in order to find ways to establish a pilot abalone multitrophic farm in Europe.

The global aquaculture production of abalone species has increased by over 750% in the last decade. In 2010, world abalone production reached 65,525t, valued at around 451 million €, of which only 8,656t originated from the fisheries sector, meaning that approximately 88% of the total abalone production was from aquaculture (FAO, 2012).

SUDEVAB Project (ID: 222156 / FP7-SME-2007-1 / 2008-2010) brought together the main producing SMEs and leading RTD Providers from the abalone aquaculture sector in Europe, for a project that had a significant impact for developing sustainable abalone aquaculture in Europe. SUDEVAB focused on the development of the fish-seaweed-abalone integrated system revealed the good potential of using a variety of seaweed and their successful production in biofilter systems. The seaweed nutritional value was similar to other macroalgae used as feed for abalone and being able to match the protein and lipid requirements of abalone, hence promoting good growth and survival.



Sea structure © Dr. Gercende Courtols De Viçose CIA, ULPGC, Spain

Sea based integrated abalone production:

The data resulting from the sea trials performed demonstrated the suitability of the enriched mixed macroalgae diet, produced in the integrated culture system, together with the offshore mariculture system. Both factors were found to have a significant effect on the successful grow-out of *H. tuberculata coccinea* found to possibly reach the cocktail/commercial size of 45–60 mm in only 18–22 months in the tested conditions.

Vegetable based formulated feed:



Algae Diet Formulated Feed © Dr. Gercende Courtols De Viçose CIA, ULPGC, Spain

The studies, performed in order to test abalone acceptance of vegetal based formulated feed indicated that feeding *H. tuberculata coccinea* with seaweeds based diets resulted in high survival and good dietary protein utilization. The effect of various macroalgae and their quality, related to culture conditions, were demonstrated to affect growth, soft body to shell ratio, feed conversion ratio and consequently dietary protein utilization.

These studies clearly demonstrated that the macroalgae produced in the biofiltering system were enriched in dietary protein and lipids and that their nutritional composition was matching the protein, lipid and carbohydrate requirements of abalone resulting in satisfying growth and survival of *H. tuberculata coccinea*.

The IP Holders, Dr. Gercende Courtols De Viçose & Dr. Maria del Pino Viera from GIA, ULPGC, Spain, John Dallimore from AQUA-GOLD FISHERIES GMBH, Germany and Sylvain Huchette from France Haliotis will work closely with AQUARK for the realisation of the Industry event with the Greek Mariculture Industry in November 2017 in Athens Greece.

Find more on ABALONE Multitrophic Mariculture in the Columbus website: www.columbusproject.eu

Contact us if you are interested to participate in the Industry event in Athens: panos@aquark.gr

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Figure 12: Abalonet Technical Brief



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- FTET- "Fish Texture Evaluation Tool (FTET) for Non-Destructive Textural Assessment of Fish Freshness"



FISH TEXTURE EVALUATION TOOL (FTET): Non-Destructive Textural Assessment of Fish Freshness

FTET is a prototype device that measures the mechanical properties (elasticity and firmness) of the muscle in farmed fish as indication of freshness and quality and is able to inform on the day of harvest and potentially give indications of the impact of diet on the fish quality.

Existing rapid non-destructive methods for assessing fish post mortem life are based on

- Potentiometric measurement of dielectric properties of fish and
- Various sensors measuring chemical products during post-mortem storage. The disadvantages of these methods include low sensitivity for earlier post-mortem stages: i.e. measuring spoilage instead of degree of freshness.




Industrial design & industrial designer

FTET Advantages:

- ▶ The tool innovates in its ability in determining freshness reduction at initial stages, before bacterial spoilage occurs, unlike alternative methods.
- ▶ Initial results were validated by organoleptic evaluation executed on the considered fish samples, and showed that the scheme achieves both detection and assessment of freshness reductions.

The FTET (FISH TEXTURE EVALUATION TOOL) will

- ▶ Improve consumer confidence on the quality and freshness of the fish they purchase
- ▶ Create market segments of superior (super fresh) fish that could be awarded a premium price.
- ▶ Enable us to select the best fish to be used as sushi and sashimi.

Potential users are fish producers, fish traders, fish mongers, supermarket fish purchasers, national and international authorities on fish trade audits, consumer when buying fresh fish over the fish counter anywhere in the world.

Impartial, algorithm-generated precise freshness evaluation versus empirical evaluation will empower informed consumers and traders to allocate best price for the best quality fish.

We expect this technology to be widely adopted also within the aquaculture industry since the fish farmers will be able to evaluate fish quality between batches of fish and based on the different feeding regimes of cultured fish to target specific high end market segments.

We aim to sell the field validated technology to an instrument manufacturer with interest on food processing in order to potentially expand it to other food categories through algorithm adaptations.



Find more on FTET from the Columbus website:
www.columbusproject.eu

Dr. KRITON GRIGORAKIS
Senior Researcher in Fish Quality
Institute of Marine Biology, Biotechnology and Aquaculture

Contact us if you are interested to field test the prototype: kgriego@hcmr.gr

Dr. DIMITRIOS DIMOGIANNOPOULOS
Associate professor
Department of Automation Engineering

Figure 13: FTET Technical Brief



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- W42 VLP Vaccine- "Combatting VNN-VER in European Sea Bass- a Novel VLP VACCINE Technology is now ready to field testing"



Combating VNN-VER in European Sea Bass. Novel VLP VACCINE Technology Is Now Ready to Field Testing

Viral Encephalopathy and Retinopathy (VNN/VER) also known as viral nervous necrosis or fish encephalitis virus) is caused by the pathogen Nodavirus or fish encephalitis virus. VER is a major problem for the Mediterranean sea bass farmers and is considered as the most severe viral disease affecting Mediterranean mariculture.

VNN-VER is costing the Mediterranean Mariculture industry annually more than 10 million Euros and the W42 VLP vaccine technology can contribute to alleviate this impact.

TARGETFISH project has been testing various adjuvants (classic / alginates etc) and vaccine formulations (DNA, recombinant). A novel subunit W42 IP vaccine (VLP) against VNN/VER has achieved remarkably improved RPS vs the classic vaccines that are tested in the field and have average RPS of 60-70%. Further to this the W42 VLP technology has a significant unique advantage of lower production cost.

The only current drawback is the limited presence of recombinant and DNA licensed vaccines in EU aquaculture (recently the first DNA fish vaccine got European Marketing authorisation), available for other cultured animal species. All the above indicate a great opportunity that this technology provides to the sustainability of Mediterranean Mariculture industry.



W42 Pichia expression platform of selected sequence from VNN-VER virus capsid during the TARGETFISH project (www.targetfish.eu) allowed the production of VNN-VER VLPs. These VLPs were concentrated achieving a 98% purity. Lab trials with IP injection vaccination produced 80% RPS in sea bass challenged with IM injection challenge.

The W42 Pichia expression system is based on methanol (explosion proven) or glycerol at de-repressing feeds induces enzyme expression easy down-streaming.

W42 VLP VNN-VER vaccine technology is 100% proven in the lab and is ready for field testing in fish farms in Mediterranean under Experimental trial protocol to aim for national authorization in the next two to three years.



Find more on the W42 VLP Vaccine Technology from both the COLUMBUS website: www.columbusproject.eu and the TARGETFISH project one: www.targetfish.eu

✉ Contact us if you are interested to field test the prototype: panos@aquark.gr

Dr. Ansgar Stratmann
Geschäftsführer/CEO
W42 GmbH, Otto-Hahn-Straße 15, D-44227 Dortmund, Germany
Phone +49 (0)231 94178991 E-Mail: info1@w42biotechnology.de



Figure 14: W42 VLP Vaccine Technical Brief

These three technical briefs have been used at the annual conference of the European Aquaculture Society, and more particularly for "business-to-business" meetings on COLUMBUS dedicated booth.



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3.4.2 Marine Environment and Futures

The Knowledge Transfer Fellow, Jülich, also contacted Nausicaá to develop three technical briefs of respectively three Knowledge Outputs that they planned to highlight during specific meetings. They were:

- **CHITOSAN**- "Innovative solutions for the packaging industry derived from chitosan-based material"



Innovative Solutions for the Packaging Industry Derived from CHITOSAN Based Material —.

The food sector accounts for approximately two thirds of global packaging. About 50% of these packages are made of plastics. Food packaging is crucial as physical and barrier protection. It keeps foodstuffs clean, fresh, and safe for consumers while increasing shelf life. **Biodegradable plastics offer a highly promising alternative.** New biological materials are emerging as potential feedstock, such as chitin waste material from the fishing industry, mostly used in cosmetics applications due to their inherent bacteriostatic properties. Chitin waste exceeds 250 billion tons/year. It is considered hazardous due to its high perishability and polluting effect, both on land and sea. So re-use and up cycling to higher value applications would establish an important step forwards towards resource efficiency, providing a relevant innovation for the SME packaging industry that is under pressure to reduce cost and respond to environmental concerns. To meet these challenges, the EU-Commission co-financed two projects within the FP7.

is in a position to enhance the sustainability of the biomass processing industry and boost the competitiveness of the European biotechnology industry.

More information: <https://www.chitbiofp7.fraunhofer.de/>



© Dr. Dirk Schories

The EU-funded **CHIBIO** (Development of an integrated biorefinery for processing chitin rich biowaste to specialty and fine chemicals) project aimed to determine a use for every component of shell waste and to process chitin in more sustainable ways.

- ≡ Novel green methods for the pretreatment of shell waste and for the depolymerisation of chitin/ chitosan to monomers
- ≡ Biocatalytic conversion of glucosamine to N-containing heterocycles and fermentation of shell hydrolysates to fatty acids as bifunctional monomers for the polymer industry

By using a very economical and environmentally sound strategy for shell waste conversion, CHIBIO

The EU-funded project **N-CHITOPACK** (Sustainable technologies for the production of biodegradable materials based on natural chitin-nanofibrils derived by waste of fish industry, to produce food grade packaging) aimed to use chitin nanofibrils to produce antibacterial and biodegradable bioplastics for food packaging. The project produced materials for three different applications: coffee capsules, food bags and packaging films.

The work of N-CHITOPACK will result in less waste, both for the seafood industry and the packaging industry, as well as improved economic and environmental impact.

More information: http://cordis.europa.eu/result/rcn/151596_en.html

If you are interested to receive more details about **CHIBIO** or **n-CHITOPACK**, the COLUMBUS project can put you into contact with the respective project coordinators.

Please contact Project Management Jülich (PMJ) at: c.krueger@fz-juelich.de





Figure 15: CHITOSAN Technical Brief



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- **Jellyfish-** “Jellyfish outbreaks in the regional seas – burden or chance”



Jellyfish Outbreaks in the Regional Seas – Burden or Chance?

There has been considerable speculation and discussion about whether **jellyfish are locally or globally increasing around the world** as well as the possible causes and patterns of increasing jellyfish populations. Unfortunately, because few long-term data sets exist, clear conclusions are elusive. However, analysis does suggest that jellyfish population sizes may vary inter-annually and fluctuate in approximately 12 to 20 year cycles, probably due to climate and planetary-scale forcing. There is limited evidence to suggest that human-caused deterioration of the coastal environment may have contributed to increasing jellyfish outbreaks.

Regardless of global trends, in several coastal ecosystems **jellyfish cause major issues to human activities and ecosystem services** that cannot be ignored. Future research goals should address better management of jellyfish impacts by:

- Filling gaps in biological knowledge,
- Developing ecosystem-based operational and modelling approaches,
- Understanding ecological and socio-economic consequences, and
- Providing recommendations and guideline for surveillance and mitigation countermeasures.

The VECTORS project seeks to develop integrated, multidisciplinary research-based understanding of changes taking place in our marine environment, the mechanisms for them and the ecological impacts expected from them. **VECTORS will examine how these changes may affect the range of goods and services provided by the oceans, the ensuing socio-economic impacts and some of the measures that could be developed to reduce or adapt to these changes.**

More information available at: http://www.marine-vectors.eu/Landing_pages/Jellyfish

Key findings regarding jellyfish:

- Jellyfish' include a multitude of both stinging and non-stinging gelatinous animals.
- Jellyfish populations naturally vary inter-annually and fluctuate in approximately 12- to 20-year cycles due to climate.
- The VECTORS Drivers of Change, including over-fishing, aquaculture, climate change, habitat modification, and introductions of alien species, suggest that human-caused coastal deterioration may have benefitted jellyfish and led to their increasing populations.
- The main problems jellyfish cause for humans include stinging, reduction of fish catches, aquaculture finfish mortality, and clogging water intakes of power and desalination plants.
- These problems bear economic costs to the tourism, fisheries, aquaculture, energy, and freshwater production industries.
- Jellyfish also provide benefits (shelter and food) for some commercial fish, food for sea turtles and humans, products for medicine and health, and social services through tourism and education.
- These benefits provide novel economic opportunities for the tourism, fisheries, medicine, health industries.

If you are interested to receive more details about the jellyfish results of VECTORS, the COLUMBUS project can put you into contact with the respective project coordinators.

Please contact Project Management Jülich (PTJ) at: f.neudoerfer@fz-juelich.de

PTJ
Projekträger Jülich
Forschungszentrum Jülich

COLUMBUS
KNOWLEDGE TRANSFER FOR BLUE GROWTH



Figure 16: Jellyfish Technical Brief

- **Open-Bio-** "Marine degradation of bio-based materials: the need for a standardization process"



Marine Degradation of Bio-Based Materials: the Need for a Standardization Process

The **materials biodegradation is still difficult to predict in the marine environment**. The ability to biodegrade can vary a lot. It depends on the materials' properties and on the marine ecosystem's (local) environmental conditions. * **Bio-based polymers are not biodegradable per se and degradability needs to be assessed for each product**. A solid proof and testing scheme for 'bio-plastics' degradability in the marine environment does not exist so far.



marine settings is not sufficiently understood. Also, fundamentally different ecological settings were not considered in Open-Bio, but may play an important role in the overall assessment of plastic in the seas. This is also true for other habitats like the deep-sea floor, which accounts for half of the Earth's surface.

The Open-Biogroup concludes that **biodegradable plastics are not a solution to littering**. Littering must be opposed by means of prevention, waste management (that includes separate collection and organic recycling of biodegradable plastics), public awareness, etc. On the other hand, plastics that are shown to be truly biodegradable in the marine environment could be profitably used in those applications where dispersion in the sea is certain or highly probable (e.g. fishing gear, fish farming gear, beach gear, paint, etc.).

More information: <http://www.biobasedeconomy.eu/research-knowledge/open-bio/>



Open-Bio (Opening bio-based markets via standards, labelling and procurement) was a research project funded by the European Commission within FP7. The goal was to investigate how bio-based products can be integrated into the market, using standardisation, labelling and procurement. One part of the project dealt with research on the biodegradation behaviour of bio-based polymers in natural environments: soil, freshwater and the marine environment. A three-scale approach was applied in Open-Bio: Laboratory tests, field tests and mesocosm tests. **In preparation of a standardization process some aspects still need further development and investigation.** The effect of fouling organisms on the biodegradation process especially in

If you are interested to receive more details about OPEN-BIO, the COLUMBUS project can put you into contact with the respective project coordinators.

Please contact Project Management Jülich (PLJ) at: c.krueger@fz-juelich.de





Figure 17: Open-Bio Technical Brief



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3.4.3 Marine Transport and Logistics

The Knowledge Transfer Fellow, CMT, also contacted Nausicaá to get a dedicated brief for the FAUSST approach that has been used for a business-to-business meeting:

- **FAUSST**- "An innovative approach to join fibre reinforced materials and steel"



FAUSST – an Innovative Approach to Join Fibre Reinforced Materials and Steel

FAUSST is an ongoing German Industrial Collective Research (IGF) project funded by the Federal Ministry for Economic Affairs and Energy (BMWi). It aims to develop a way to join steel and composite structures with focus for the shipbuilding industry. The joining approach is based on a hybrid warp-knitted fabric, that on one side is composed 100% of steel and on the other side 100% of glass yarns, permitting therefore to weld one or several layers to a steel connector. These two then form the FAUSST half-finished product, that on the fibre side permits the integration into a composite structure by lamination – a standard process in the composite industry. In this way, the composite structure is manufactured with an integrated steel frame, which can be welded to a steel structure.

FAUSST thereby permits to join fibre reinforced structures and steel without the need of additional materials using commonly used processes in both the composite and shipbuilding industry.

Laboratory tests have shown that joint strengths of up to 200 kN/m can be achieved with four layers of the hybrid fabric outperforming adhesive joining both in mechanical properties and costs. Points for improvement of the hybrid fabric and the connector design have been identified. They are planned to be implemented in a follow up project.

This half-finished product could be potentially interesting to fibre reinforced material structure manufacturers looking for joining it to a steel structure.

Currently, prototypes are manufactured at industrial partners to confirm the industrial suitability of the half finished product. In addition, discussions with a class society are being undertaken in order to get an approval in principle.

The benefits over other joining technologies between fibre reinforced materials and steel are:

- Commonly used processes for the manufacturing process of the fabric and the joining of the fabric to the steel connector are used
- Connection based on standard processes
 - Welding
 - Laminate
- Short overlap needed
- Beneficial for lightweight applications
- Beneficial for aerodynamic and hydrodynamic surfaces
- Design freedom
 - Drapeability
 - Tailorability
- Wider production process window



© Fritz Moll TEXTILWERKE
Steel – Glass fibre knitted hybrid transition fabric.

If you are interested about the **FAUSST** project, please consult www.fausst.com

Please contact CMT at: molter@cmt-net.org and luterbacher@cmt-net.org

Figure 18: FAUSST Technical Brief



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3.4.4 Marine Governance and Management

The Knowledge Transfer Fellow, CETMAR, contacted Nausicaá to get a dedicated brief for AquaNIS to use during a Knowledge Transfer event:

- **AquaNIS**– “Provides data of aquatic non-indigenous and cryptogenic species in European waters”



AquaNIS provides data of aquatic non-indigenous and cryptogenic species in European waters

One of the outcomes of the EU project VECTORS, is AquaNIS, which represents the most updated database resource available to scientists, coastal managers, stakeholders, and policymakers dealing with Europe's aquatic invasive alien species, also known as non-indigenous species (NIS). It stores and disseminates information on NIS' introduction histories, recipient regions, taxonomy, biological traits, impacts and other relevant data.

AquaNIS currently contains data on 1455 marine, brackish and freshwater alien species involved in 4502 introduction events in 19 large marine ecosystems of Europe and neighboring regions. Data within blocks are grouped according to attributes, eg. biological traits, pathways and vectors.

An important feature of AquaNIS is its flexible, easily extendible structure, where new blocks and functional modules may be added as necessary.

The information system is equipped with a structured "search" function that allows for retrieving and organising data by multiple and complex search criteria.

AquaNIS offers:

- data retrieval for a recipient region
- data export to Excel for further analysis
- identification of similarity and dissimilarity in species composition among regions

AquaNIS differs substantially from existing NIS information sources in its organizational principles, structure, functionality and output potential for end-users. The yearly updates stem from data reported by the members of the ICES Working Group on Introductions and Transfers of Marine Organisms. The data is quality-assured and all relevant new observations are taken into account. The taxonomy is based on the updated accounts in the World Register of Marine Species (WoRMS).

WORMS

INTRODUCTION EVENT

- A species in A recipient region
- Date of the first record
- Statistics
 - Species status (2)
 - Population status (3)
- Traits in recipient region
 - Reproductive duration (3)
 - Reproductive seasonality (3)
 - Reproduction pattern (3)
- Environmental conditions
 - Habitat type (3)
 - Zonation (3)
 - Wave exposure (3)
 - Salinity range (3, 14)
 - Temperature range (3)

GEOGRAPHY

- Source region
- Regional impacts
 - Reproduction index (3)
 - Global-economic impacts (3)
- Pathways (13) & vectors (4)

SPECIES

- Taxonomy
 - Life form vs Life stage (3)
 - Scalability vs Life stage (3)
- Biological traits
 - Reproductive frequency (3)
 - Reproductive type (3)
 - Developmental trait (3)
 - Characteristic feeding method vs Life stage (3)
 - Mobility vs Life stage (3)
 - Salinity tolerance range (3, 14)
- Molecular information (2)
- Association with vessel vectors (3)

AquaNIS user interface

The data content is of value for researchers, can help implement the Marine Strategy Framework Directive and determine possible exemptions under the International Convention for the Control and Management of Ship's Ballast Water and Sediment.

COLUMBUS project is working together with VECTORS project on facilitating transfer of AquaNIS to potential end users to create measurable impact.

The COLUMBUS project can put you in contact with the VECTORS project coordinator, Melanie Austen, and AquaNIS's chief editor Prof. Sergej Olenin.

Please contact Mónica Incera (COLUMBUS Knowledge Fellow) mincera@cetmar.org

More information on AquaNIS at: <http://www.corpi.ku.lt/databases/index.php/aquanis>



Figure 19: AquaNIS Technical Brief

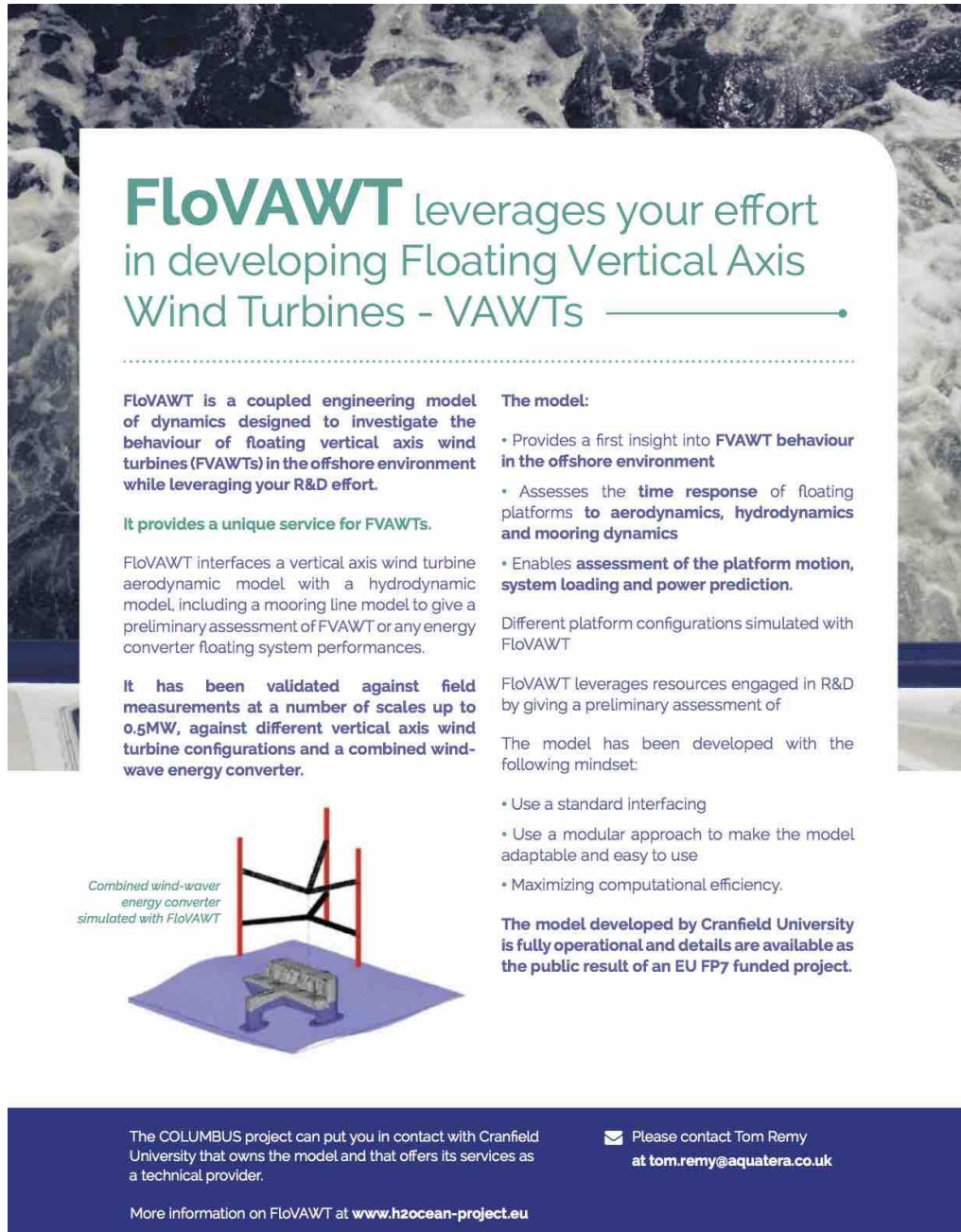


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3.4.5 Marine Physical Resources

Aquatera, this Competence Node's Knowledge Transfer Fellow, contacted Nausicaá for the production of three technical briefs. They were:

- **FloVAWT**– “Leverages your effort in developing Floating Vertical Axis Wind Turbines – VAWTs”



FloVAWT leverages your effort in developing Floating Vertical Axis Wind Turbines - VAWTs

FloVAWT is a coupled engineering model of dynamics designed to investigate the behaviour of floating vertical axis wind turbines (FVAWTs) in the offshore environment while leveraging your R&D effort.

It provides a unique service for FVAWTs.

FloVAWT interfaces a vertical axis wind turbine aerodynamic model with a hydrodynamic model, including a mooring line model to give a preliminary assessment of FVAWT or any energy converter floating system performances.

It has been validated against field measurements at a number of scales up to 0.5MW, against different vertical axis wind turbine configurations and a combined wind-wave energy converter.

The model:

- Provides a first insight into **FVAWT behaviour in the offshore environment**
- Assesses the **time response** of floating platforms **to aerodynamics, hydrodynamics and mooring dynamics**
- Enables **assessment of the platform motion, system loading and power prediction**.


Different platform configurations simulated with FloVAWT

FloVAWT leverages resources engaged in R&D by giving a preliminary assessment of

The model has been developed with the following mindset:

- Use a standard interfacing
- Use a modular approach to make the model adaptable and easy to use
- Maximizing computational efficiency.

The model developed by Cranfield University is fully operational and details are available as the public result of an EU FP7 funded project.



Combined wind-waver energy converter simulated with FloVAWT

The COLUMBUS project can put you in contact with Cranfield University that owns the model and that offers its services as a technical provider.

More information on FloVAWT at www.hzocean-project.eu

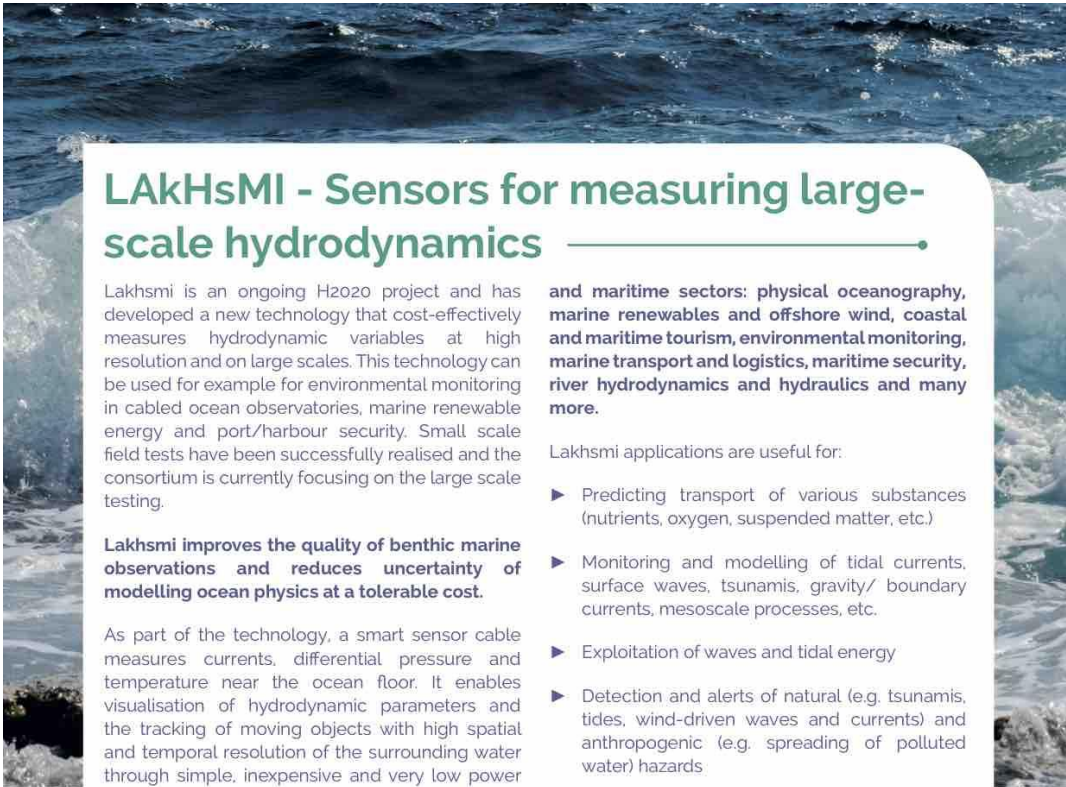
Please contact Tom Remy at tom.remy@aquatera.co.uk

Figure 20: FloVAWT Technical Brief



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- **Lakshmi**– “Sensors for measuring large- scale hydrodynamics”



LAKHsMI - Sensors for measuring large-scale hydrodynamics

Lakshmi is an ongoing H2020 project and has developed a new technology that cost-effectively measures hydrodynamic variables at high resolution and on large scales. This technology can be used for example for environmental monitoring in cabled ocean observatories, marine renewable energy and port/harbour security. Small scale field tests have been successfully realised and the consortium is currently focusing on the large scale testing.

Lakshmi improves the quality of benthic marine observations and reduces uncertainty of modelling ocean physics at a tolerable cost.

As part of the technology, a smart sensor cable measures currents, differential pressure and temperature near the ocean floor. It enables visualisation of hydrodynamic parameters and the tracking of moving objects with high spatial and temporal resolution of the surrounding water through simple, inexpensive and very low power optical transduction.

Some of the sensor's operational capacities are:

- ▶ Oceanographic measurement including parameters such as flow, temperature, differential pressure of the ocean floor and detailed knowledge of hydrodynamics in the near-bottom layer
- ▶ Detection of moving objects in the water, including vessels

Lakshmi provides a low cost solution for ocean monitoring. It represents an innovative sub-sea technology for management and sustainable marine resources and contributes to the high potential Blue Growth sectors.

The technology will be useful for various marine

and maritime sectors: physical oceanography, marine renewables and offshore wind, coastal and maritime tourism, environmental monitoring, marine transport and logistics, maritime security, river hydrodynamics and hydraulics and many more.

Lakshmi applications are useful for:

- ▶ Predicting transport of various substances (nutrients, oxygen, suspended matter, etc.)
- ▶ Monitoring and modelling of tidal currents, surface waves, tsunamis, gravity/ boundary currents, mesoscale processes, etc.
- ▶ Exploitation of waves and tidal energy
- ▶ Detection and alerts of natural (e.g. tsunamis, tides, wind-driven waves and currents) and anthropogenic (e.g. spreading of polluted water) hazards
- ▶ Understanding water current dynamics which could support offshore dumping activities, impacts from climate change, etc.
- ▶ Tracking moving objects, surface and under surface vessels monitoring; and
- ▶ Understanding river dynamics, e.g. for river hydrokinetic technologies.

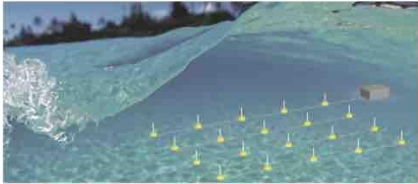


Illustration of the sensor system

If you are interested to receive more details about Lakshmi, the COLUMBUS project can put you into contact with Lakshmi's project coordinator.

Please contact Aquatera at:
Natalia.Rojas@aquatera.co.uk

More information about the project on: <https://www.lakshmi.eu/>

Figure 21: Lakshmi Technical

- **Mermaid** - "Secures your marine operations for offshore wind turbine (OWT) jacket foundation installations"

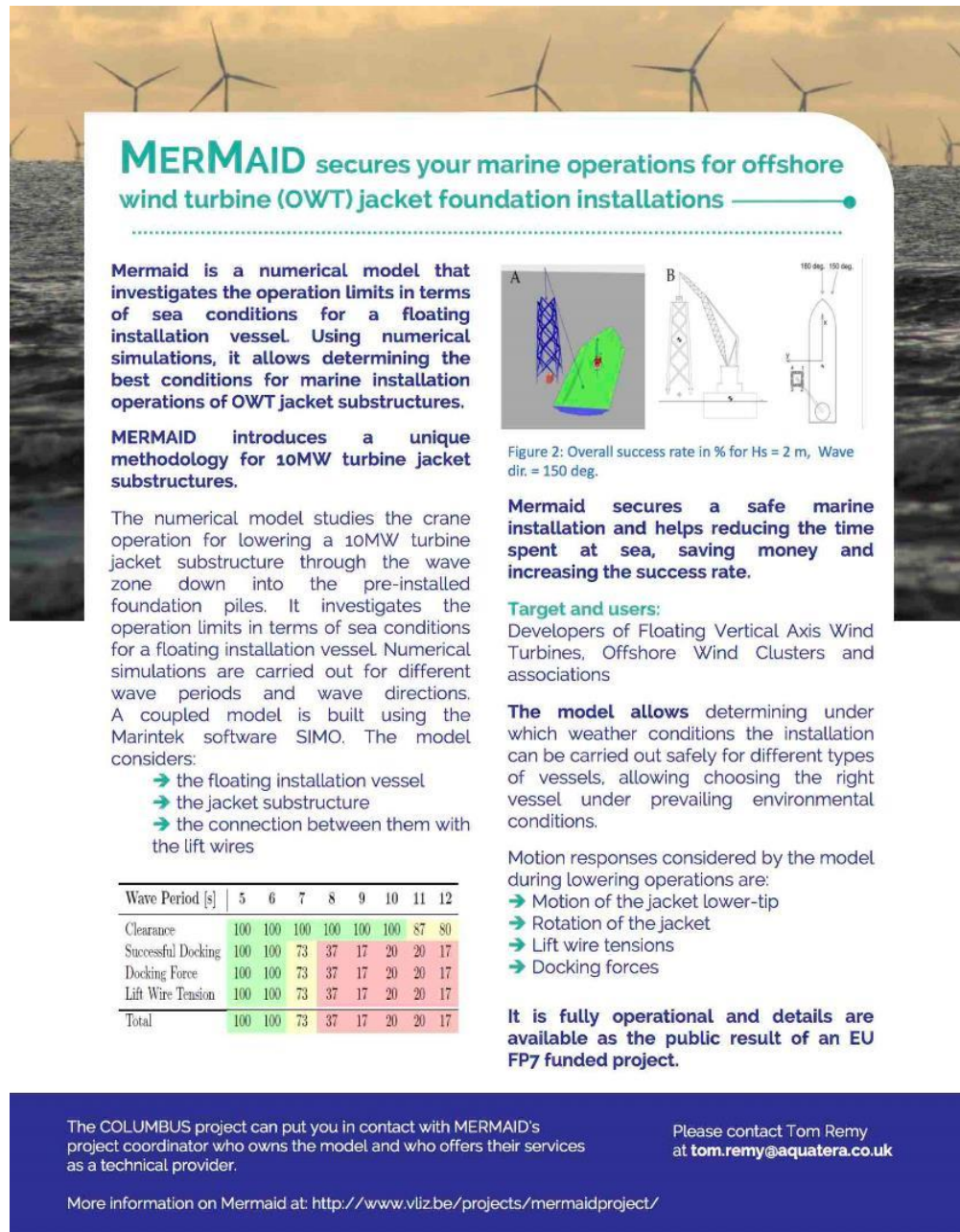


Figure 22: Mermaid Technical

All these technical briefs have been shared with the consortium on the COLUMBUS dedicated WP7's Basecamp page.



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4. “Public format” stories of Knowledge Transfer

4.1 Presentation

After three years of Knowledge Transfer related activities, implementing the COLUMBUS methodology, 48 “public format” stories of Knowledge Transfer (http://www.columbusproject.eu/CCV6_FINAL.pdf) have been selected to **illustrate the detailed journey taken by COLUMBUS to carry out Knowledge Transfer across European marine and maritime sectors.**

They cover the eight COLUMBUS Competence Nodes: Aquaculture, Fisheries, Marine Biological Resources, Marine Environment and Futures, Marine Governance and Management, Marine Monitoring and Observation, Marine Physical Resources and Maritime Transport and Logistics².

4.2 Content

Aiming to outline the detailed Knowledge Transfer journey across the marine and maritime sectors (e.g. respectively the COLUMBUS nodes), each “public format” case study has been built upon the following structure on a four-page format.

- Title of the Knowledge Output
- Overall impact of COLUMBUS
- Testimonial from the knowledge owner, target user or end user
- The journey itself is represented throughout several steps with:
 - o Step 1: Collection – Describing both the knowledge need and Knowledge Output
 - o Step 2: Analysis – Developing a Knowledge Transfer process with a description of the Knowledge Output Pathway
 - o Step 3: Analysis – Profiling target user with a description of Knowledge Transfer activity and target user
 - o Step 4: Transfer – Describing the Knowledge Transfer activity
 - o Step 5: Transfer – Measuring the impact of the Knowledge Transfer activity, with an outline of any next steps to be taken
- The project identification information, including:
 - o Project name, funding scheme, value and timeline,
 - o Competent Node
 - o Credits (photos and texts)
 - o Contact details

² A ninth Competence Node was closed at mid-term review, “Marine Tourism”



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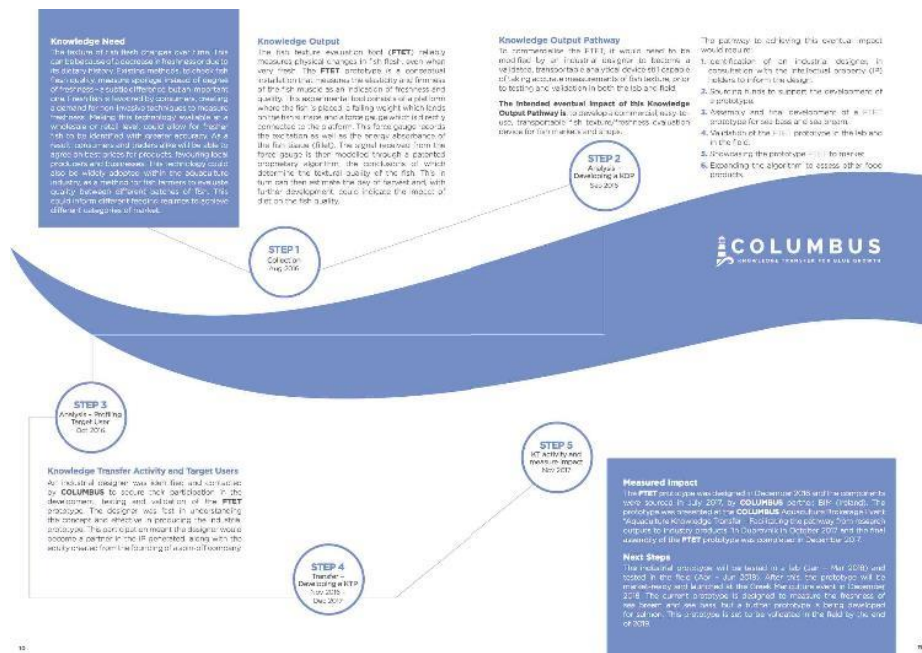


Figure 23: A complete Knowledge Transfer journey, as described into each of the “public format” case study.

4.3 Selected 48 “Public Format” stories of Knowledge Transfer

Regrouped into a booklet, the stories of Knowledge Transfer really showcase the promotion of marine and maritime research toward a Blue Society, with the following stories provided by each of the eight Competence Nodes:

Aquaculture

- Improving fish texture evaluation using non- destructive assessment of fish flesh freshness,
- FishShape mobile app to identify malformations in commercial fish species in European aquaculture,
- Creating sustainable abalone aquaculture across Europe,
- Novel veterinary treatment to reduce bacterial caused mortalities in larval aquaculture,
- Improving fish nutrition through novel fish feed premixes,
- Mitigating negative dietary side effects of changing to plant-based feed for sea bream, and
- Convenient vaccination of small fish against harmful diseases.

Fisheries

- Influencing Danish law to accept integrated multi-trophic aquaculture schemes,
- Improving inspections of underwater structures using laser imaging systems,
- State-of-the-art innovations in energy for offshore aquaculture,
- Optimisation of fishing gear selectivity using underwater imaging, and
- Underwater camera for improving the assessment of the small lobster nephrops.



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Marine Biological Resources

- Highlighting the importance of access and benefit-sharing of marine biological resources,
- Exploring the use of seaweed-derived biopolymers in biomedical technology,
- Low-cost marine microbial sampling kit for the next generation,
- Novel low-cost respirometer for measuring coral health,
- Mitigating microplastic pollution with waste water treatment technology,
- Harmful algal bloom (HAB) forecast and warning system, and
- Using human diagnostics technology to screen for chemicals in the environment.

Marine Environment and Futures

- Engaging regional policy makers in marine litter prevention,
- Educational material on the impact of plastic littering in marine environments,
- New exhibition on the environmental impacts of plastic waste (more information also available in the exhibit section), and
- Innovative solutions for the packaging industry using material made from crustaceans .

Marine Governance and Management

- Innovative tools combined to support quality environmental impact assessments in marine environments,
- Achieving good environmental status in maritime ports,
- European research's contribution to the achievement of good environmental status and a stronger blue economy in Europe,
- Specialised database to assess the status of non-indigenous species in European seas,
- Furthering the integration and harmonisation of existing information systems on marine non- indigenous species,
- Clustered Knowledge on marine litter used to fulfill EU policy needs,
- Incorporating Knowledge management and Transfer methodologies in a publicly funded project to maximise its uptake and impact,
- Discards data sharing: An outcome from dialogue between discards-focused projects and the European Fisheries Control Agency,
- Enhancing stakeholders' perception of the landing obligation in European fisheries, and
- Using performance data of selective fishing gears to reduce shing discards.

Marine Monitoring and Observation

- Best practice in use and sharing of marine observations and data by industry,
- New innovative marine data applications by building on existing resources and services,
- Advancing state-of-the-art technology in sensing marine pollutants, and
- Using marine tourism to increase access to European marine biodiversity data.



Marine Physical Resources

- Reference turbine overcomes bottleneck in offshore wind development,
- Sensors for measuring large scale hydrodynamics,
- State-of-the-art mutually supporting systems for offshore aquaculture,
- New environmentally-friendly biofouling and corrosion prevention coating for marine renewables,
- New model propels the development of coating vertical axis wind turbines,
- Multimedia e-learning tool promoting education of aquatic renewable energy technologies, and
- Developing a consistent and proportionate approach to Environmental Impact Assessment of marine renewable energy in the UK

Maritime Transport and Logistics

- Environmentally-friendly anti-fouling paint for marine observation devices,
- Novel solution for composite-steel joints,
- Application of new innovative composite materials for river cruise ships, and
- Self-healing coatings as corrosion protection in maritime shipping.

4.4 Release and Dissemination

Deliverable 6.5 contains all of the case studies (some of which are confidential). Further public case studies may be released up to 30 April 2018 and made available on the COLUMBUS website.

A draft version of the 48 stories of Knowledge Transfer was launched at the 3rd COLUMBUS International Knowledge Transfer Blue Society Conference on 24 January 2018. This version is available on the COLUMBUS website³. Feature

To optimize their visibility, COLUMBUS set up a dedicated Communications Working Group (cf. D7.6) to develop feature articles on individual stories of Knowledge Transfer in the final weeks of the project. Known as "Twitter cards", these promotional articles are being circulated on LinkedIn and on twitter.

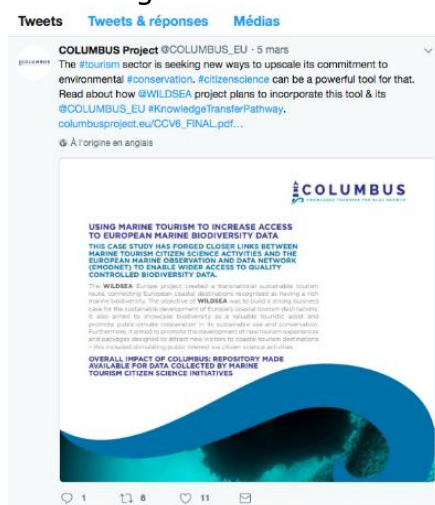


Figure 24: one of the posted twitter card

³ <http://www.columbusproject.eu/project-results>



VI. CONCLUSION

COLUMBUS Competence Node teams, including Competence Node Leaders and Knowledge Transfer Fellows, have received communication support and expertise throughout the COLUMBUS lifespan in order to successfully run their respective Knowledge Transfer activities, as this report has highlighted.

Moreover, the “collection of knowledge transfer case studies **for promotion of marine science across europe**” - as per the grant agreement-

[has been] to provide input into the selection of communication channels, materials and tools depending on the Target User(s), and [worked] in conjunction with all competence Nodes to ensure coherence of all materials created and activities conducted.

This task [has been] also focusing on ensuring that the Knowledge Transfer activities were timely and planned in conjunction with communication activities.

Collecting information of Knowledge Transfer activities [have also fed] into other WP7 tasks, such as Task 7.3 'Brokerage events' and Task 7.6, 'Marine Research for a blue society'.”

This expertise and support has been demonstrated by the development of a serie of tailor-made tools and best practice guidelines to ensure that Competence Node Leaders and Knowledge Transfer Fellows could communicate efficiently toward their respective Knowledge Transfer targeted audience(s).

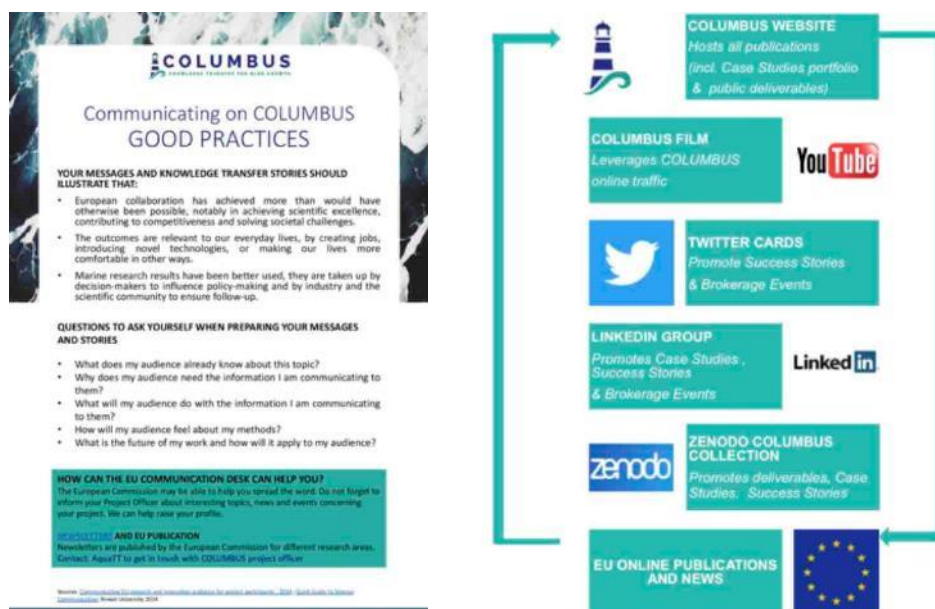
In addition to these, they have benefitted from the development of technical briefs to present Knowledge Outputs at meetings and events, supporting Knowledge Transfer activity, and guidance on how to best manage events, specifically the COLUMBUS 'Brokerage Events.

Finally, the Knowledge Transfer journey has recently been published through a booklet of 48 “public format” stories. They are available from the COLUMBUS website (http://www.columbusproject.eu/CCV6_FINAL.pdf) . They were featured in articles promoted in the remaining weeks of the COLUMBUS project, on its dedicated mainstreams social media.

With the end of COLUMBUS, these “public format” stories are a great illustration and a tangible evidence of how following a robust methodology to carry out Knowledge Transfer increases its success, including the identification of appropriate communication supports.




ANNEX 1. Communicating on COLUMBUS Good Practice (2 pages)



Annex 2. LinkedIn COLUMBUS Group Good Practice (1 page)



Annex 3. Twitter Good Practice (2 pages)



Twitter GOOD PRACTICES

Various hashtags can be related to COLUMBUS. First of all there are the 3 main hashtags already used on the COLUMBUS account: [#KnowledgeTransfer](#), [#MarineScience](#) and [#Impact](#).

Other hashtags can be used for a specific topic:

- [#OceanNews](#) (when you share some news on marine and maritime research);
- [#OceanSolutions](#) (when solutions or good news concerning the ocean have been brought to light);
- [#MaritimeMonday](#) (tweets about boats, ships and maritime transportation, and of course on Mondays);
- [#Innovation](#).

This is not an exhaustive list. Feel free to use any other relevant hashtag. It is important not to overly hashtag your tweets (it's #uncomfortable to #read).


Don't forget to include the link to the project website! Here is a shorter link to the COLUMBUS web page: <https://columbus.eu> But remember it has to be relevant. Useless links tend to reduce the tweet's impact.

Retweet (RT) is good to keep your account in activity even if you are short of fresh news from the project.

Tags are important because they greatly increase the visibility of your tweet. You can also add the tag of COLUMBUS (@COLUMBUS_EU) in your Twitter biography to redirect people to COLUMBUS' page.

Be careful: if you want to start your tweet with a tag, only followers of both yours and the tagged account will see it. Just add "" before, and everybody will see it!

Add impact to your tweet with a picture illustrating your statement. The COLUMBUS film can also do the trick!



Twitter is a social media site on which policymakers and influencers are very active. It is a good way to promote your Knowledge Transfer success stories and to share inspirational knowledge.

Twitter also brings a web of people interested in marine science to whom we can promote COLUMBUS activities and results. Through this social media, marine and maritime science and the project can integrate the daily news feed of policymakers.

What can I tweet about ?

Case studies: effective Knowledge Transfer stories are great to share on Twitter! Do not forget to tag everyone involved in the story to increase the tweet's visibility.

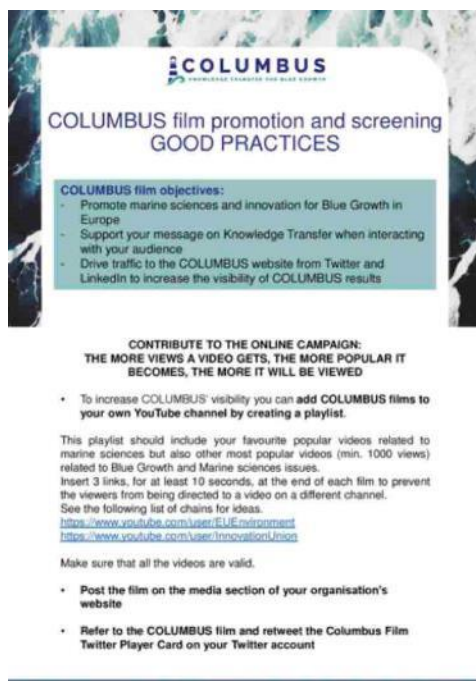
A TWITTER CARD is a good way to communicate on COLUMBUS stories. Twitter summary cards offer extended tweets. They are designed to give the reader a preview of your KT success stories before clicking through to the COLUMBUS website. It helps to drive traffic to the COLUMBUS website and to spread the word about COLUMBUS success stories.

Events: where better than Twitter to promote Knowledge Transfer activities? You can tweet before the event, sharing the leaflet and/or the agenda, but you can also livetweet the event so that people who aren't there can have an idea of what a Knowledge Transfer activity is. If you choose to tweet during the event, it can be good to create a hashtag for the event and invite all participants to share their views using this hashtag.

Interaction is a key element of Twitter, so as well as tweeting, you can also answer other people's tweets, react and comment. Doing that will increase your account visibility!

When should I tweet ?
Between 8 and 10 am is the best time to tweet.
Don't hesitate to tweet the same thing twice.

Annex 4. COLUMBUS Film Promotion and Screening Good Practice (2 pages)



COLUMBUS film promotion and screening GOOD PRACTICES

COLUMBUS film objectives:

- Promote marine sciences and innovation for Blue Growth in Europe
- Support your message on Knowledge Transfer when interacting with your audience
- Drive traffic to the COLUMBUS website from Twitter and LinkedIn to increase the visibility of COLUMBUS results

CONTRIBUTE TO THE ONLINE CAMPAIGN: THE MORE VIEWS A VIDEO GETS, THE MORE POPULAR IT BECOMES, THE MORE IT WILL BE VIEWED


- To increase COLUMBUS' visibility you can add COLUMBUS films to your own YouTube channel by creating a playlist.

This playlist should include your favourite popular videos related to marine sciences but also other most popular videos (min. 1000 views) related to Blue Growth and Marine sciences issues. Insert 3 links, for at least 10 seconds, at the end of each film to prevent the viewers from being directed to a video on a different channel. See the following list of chains for ideas.

<https://www.youtube.com/user/EUEmpowerment>
<https://www.youtube.com/user/InnovationInnovo>

Make sure that all the videos are valid.

- Post the film on the media section of your organisation's website
- Refer to the COLUMBUS film and retweet the Columbus Film Twitter Player Card on your Twitter account



When to screen the COLUMBUS film

- AS AN INTRODUCTION DURING THE BROKERAGE EVENTS
- YOU CAN USE THE FILM TO INTRODUCE / CONCLUDE YOUR PRESENTATION IN CONFERENCES

Prior to your intervention, make sure that:

- The venue is equipped for sound
- You have downloaded the file from Basecamp on your computer (wifi can always fail)

- THE FILM CAN BE PLAYED IN A CONTINUOUS LOOP ON YOUR BOOTH DURING INTERNATIONAL EXHIBITIONS AND TRADE FAIR.

This brings more people's attention to your booth than a standard standalone poster.

The film is still meaningful even when the soundtrack is muted.

- THE FILM CAN BE PLAYED IN YOUR FACILITIES DURING OPEN DOORS DAYS.

2017 COLUMBUS film screening schedule

The film will be promoted and screened during major events throughout 2017. The list is not exhaustive. You can actively contribute to this plan by screening the film in the events where you are involved.

- May: European Maritime Day Workshop held by Nausicaa and WWF on *To engage or not to engage? Stakeholder engagement*
- June: World Ocean Days Nausicaa's exhibit and partners facilities
- September: COLUMBUS Annual Conference
- November: Assises de l'Economie de la mer



Annex 5. Knowledge Transfer Methodology Movie – Precisions

i. Objective

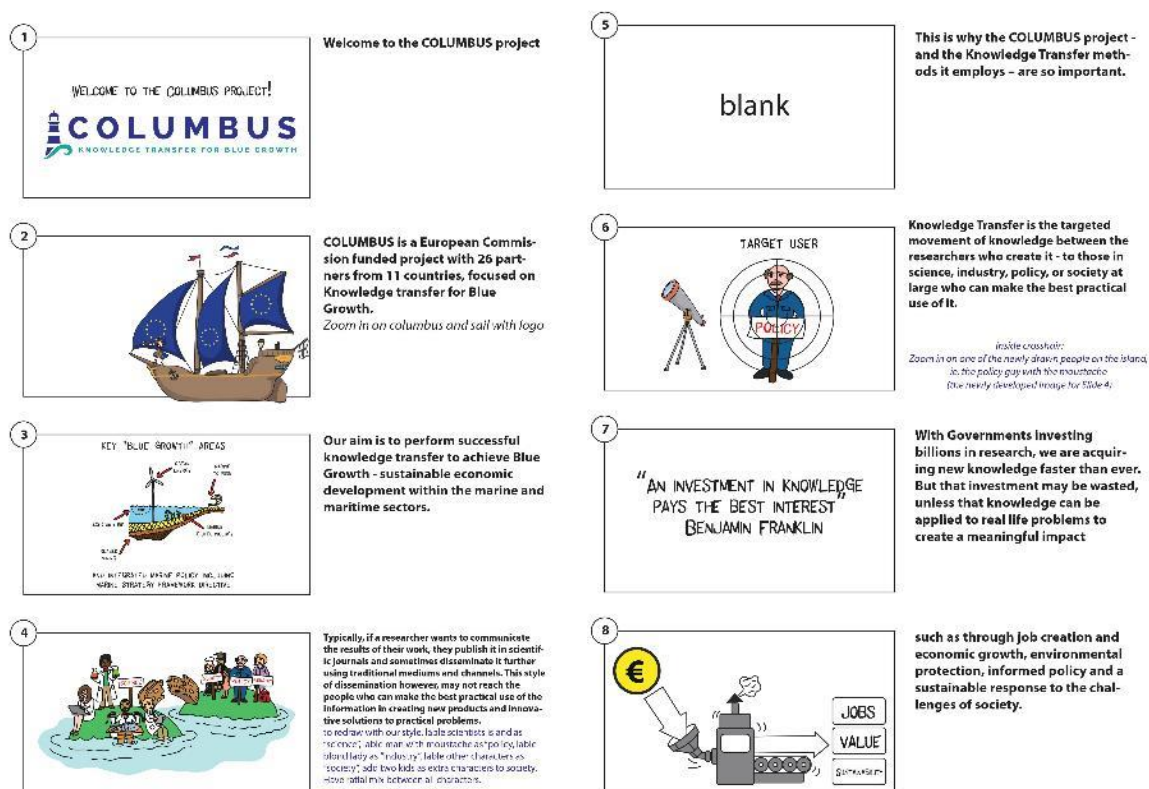
In order to present COLUMBUS methodology for knowledge transfer a dedicated movie has been produced.

ii. Organisation

- AquaTT developed a video for Fellows to communicate the Knowledge Transfer methodology with its script writing, storyboard design, and launch,
- Eurocean and Nausicaa both provided inputs for its development

iii. Storyboard

Title: The COLUMBUS Project - An Introduction to Knowledge Transfer for Blue Growth

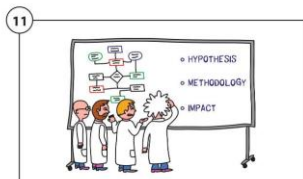




In the past, research findings have not always achieved the 'real world' impact that they might have done, due to the system by which research is carried out.

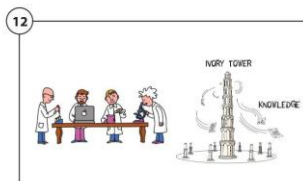


Problems that need to be addressed are typically identified by a group of experts, whom then put out a call to the research community to propose projects that respond to the identified challenges or needs.



Scientists, often collaborating across organisations and countries, respond with proposals as to how these challenges or needs can be addressed through research. They do this by defining a hypothesis and developing a methodology to carry out the research, generate new data, information and knowledge and validate their findings.

Redraw slide. Same characters as scientists in slide 12 but focused on a white board/flip chart, developing a project. On the white board, there should be a project structure design (flow chart type image), with three bullet points saying hypothesis, methodology and impact. The scientists can look slightly more stressed in this picture (as it is a little more funny and everyone relates to this).



Funding for research is very competitive and only the best projects get funded
Thousands of the best minds in the Europe are working on research each and every day.
But what happens to the knowledge they produce?

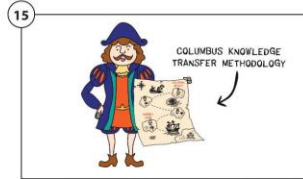


A researcher today has a very different job from those in the early days of science. On top of their research and teaching workloads, today's researchers are expected to administer projects, bid for funding and communicate their research to non-scientists. Scientists are often not rewarded for transferring their knowledge beyond having it appear in scientific publications – which only scientists read...
to redraw from image with our style, scientist needs to look stressed. The scientist should have "Doctor" on his labcoat



So it is no surprise that their knowledge is not always being received by others outside of science, who can make practical use of it.

Feature same scientist as previous slide grinning and looking very proud, holding two juggling balls (as opposed to several in the slide before) saying "publications" and "RTD funding", now his badge should have "Doctor" crossed out and say "Professor".



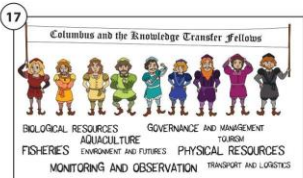
COLUMBUS wants to change this... and approach science communication in a scientific way.
And here's how...
COLUMBUS has mapped out a process of transferring knowledge to create measurable impact, called the COLUMBUS Knowledge Transfer methodology

Replace with new map design - maintain whirlpool and sea monster. same style, put whirlpool between 2 islands so that blocks the easy direct path



We have nine full-time Knowledge Transfer Fellows working on this

Capitalise Knowledge Transfer Fellows, and turn some of the fellows into females



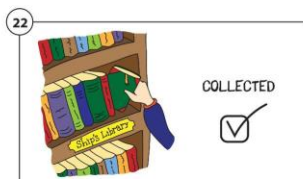
...each focusing on one of nine thematic areas, or "Competence Nodes"



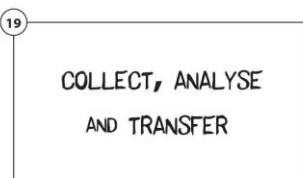
...and the most essential skillset they have is that they are all Explorers – trained in the COLUMBUS methodology...



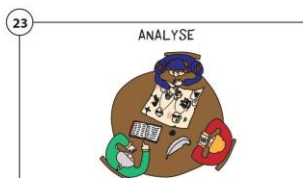
All done using a standardised methodology.



But gathering knowledge and making it publicly available, doesn't mean it will get used. Collection is only the start!

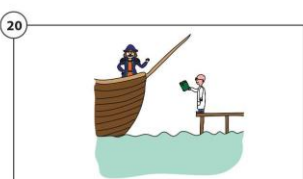


COLLECT, ANALYSE, and TRANSFER.



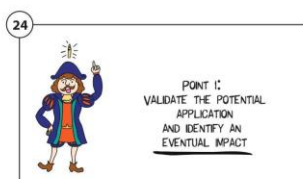
So next, we analyse the potential applications of each Knowledge Output generated by a project using a team of experts with a wide range of backgrounds and experience.

update with new map



Redraw to have scientist standing at the dock handing a book of Knowledge Outputs (same as slide 22) to COLUMBUS on his ship (show only the nose of the ship).


In COLUMBUS, we actively collect what we call 'Knowledge Outputs' – which go beyond the basic data or reports generated by a scientific project, to include new methodologies, adaptations and insights, or alternative applications of prior knowledge – that can be put to use in solving everyday practical problems...



Their job is to determine how each Knowledge Output might be applied to answering a particular question or solving specific problems and to find a best-case scenario or 'Eventual Impact' for each one.

Underline eventual impact when John says it

- 25




POINT 2:
DEVELOP A KNOWLEDGE OUTPUT PATHWAY

This involves developing a Knowledge Output Pathway for each Knowledge Output. We identify the best route, passing the knowledge from actor-to-actor, to Eventual Impact. At each step, we consider how each actor might wish to receive and apply the knowledge, so as to maximise our chances of success.
- 29

POINT 2:
MEASURE IMPACT USING PRE-DEFINED INDICATORS


We also outline a number of impact indicators to track our activities.
- 26




POINT 2:
DEVELOP A KNOWLEDGE OUTPUT PATHWAY

We also use a team of experts to validate this Pathway, to ensure that it is the most efficient route available.


use new map and replace sword with a flag of COLUMBUS on the final island, use logo of lighthouse below


- 30



We then perform the Knowledge Transfer activities, and consider these successful if the knowledge has been taken up and applied by the Target User. Step-by-step this process is repeated over the course of the COLUMBUS project.


Almost the opposite to the new slide for 20. Show COLUMBUS getting off the boat and handing knowledge to the policy maker on his island. Lastly, add a COLUMBUS flag to the island.
- 27



TRANSFER

When the Knowledge Output Pathway is finalised, we look at the first actor in the pathway to whom the knowledge should be transferred. This person is called the Target User. Once we have identified the Target User, we are ready to plan how to transfer the knowledge.

zoom in in the cross hair to policymaker from slide 4
- 31



Map: enlarge island with COLUMBUS flag in it, then zoom out to full map view and draw more and more islands with the COLUMBUS flag on them, transition to COLUMBUS holding an impact flag
- 28

POINT 1:
DEVELOP A KNOWLEDGE TRANSFER PLAN

 - ✓ MESSAGE
 - ✓ CHANNEL
 - ✓ RESOURCES
 - ✓ TIMING

This requires a deep understanding of the needs and motivations of the Target User. Using this information, we are able to tailor-make an effective, targeted Knowledge Transfer Plan, which outlines the message, channel, resources and timing of the required Knowledge Transfer activity
- 32

blank
- 33

blank


COLUMBUS will continue to perform knowledge transfer for numerous EC-funded projects over its lifetime, but what happens when the project finishes?
- 34

blank

To ensure that the knowledge and experience we've generated is not lost, we are documenting our insights and experiences, piloting Knowledge Transfer protocols into a national funding agency, and developing recommendations for the Commission.
- 35

blank

We are also developing guidelines and providing external training to anyone interested in learning about applying Knowledge Transfer to their own projects
- 36



Join COLUMBUS on our adventure. Explore knowledge and make an impact.

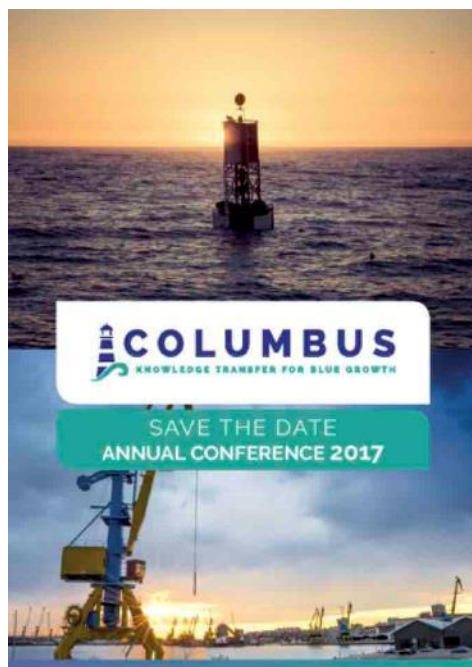
CONTACT: INFO@COLUMBUS-CTI.EU
Twitter: @COLUMBUS_CT
CONTACT: INFO@COLUMBUS-CTI.EU
CONTACT: INFO@COLUMBUS-CTI.EU
CONTACT: INFO@COLUMBUS-CTI.EU

Annex 6. Brokerage Events Good Practice (2 pages)

COLUMBUS KNOWLEDGE TRANSFER FOR BLUE GROWTH	
Brokerage events GOOD PRACTICES	
Team	1. Recruit a brokerage event workshop team (3 to 4 people)
Theme / Purpose	2. Explain the purpose and the framework of a COLUMBUS knowledge transfer brokerage event to them
When and where	3. Review the KTOs you will broker during the COLUMBUS knowledge transfer brokerage event
Participants- recruitment process	4. Review the ETP to make sure that the brokerage event will be consistent with the plan
	5. Determine the date and location of the NNK workshop while considering other related major / bigger events to facilitate the recruitment process
	6. Set up a stakeholder involvement strategy and design a recruitment plan including the follow-up after the brokerage event
	7. Start two months ahead of the potential date
	8. Identify which stakeholders to involve and why. Create a list. Describe all potential end-users you want to recruit / make a quick analysis answering the "what's in it for me?" question. Think of various incentives for stakeholder participation, such as professional development credit, presence of keynote speakers, publication of results, networking opportunities, an attractive setting linked to the workshop topic, etc.
	9. Describe the KTO using straight wording (Who, What, Where, When, Why?)
	10. Ask WP7 + WPG for support in communication / IR in the template to order communication materials
	11. Share the KTO description, the KTO and the targeted users / end-users, date and location of the workshop on Basecamp to the whole partnership
	12. Attach an invitation for the brokerage event including all useful information and communication materials
	13. Ask COLUMBUS partners to spread the word to their networks
	14. Send invitations and recruit participants one month ahead of the date of the workshop at the latest. Be sure the purpose of the workshop is clearly detailed.

Annex 7. Save the Dates

2nd Annual Conference - on November 7, 2017 (Brussels, BELGIUM)



COLUMBUS Blue Society Knowledge Transfer Conference 2017:
Achieving Impact from Marine Research

Date: 6-7 November 2017 | Location: Brussels, Belgium
6 November 2017 -> External Capacity Training
7 November 2017 -> Annual Conference 2017

An international forum to bring together actors interested in sharing best practice and learning about initiatives and sectoral progress in **Knowledge Transfer**. This conference will offer an opportunity to collaboratively explore the barriers, challenges and possible solutions to achieving the impact potential of marine and maritime research, at all stages of the funding cycle. Training on the COLUMBUS Knowledge Transfer methodology will be available, targeted towards EU staff and funding agencies.

Target Audiences: _____
Staff from the EC (including JRC) and the Research Executive Agency; National funding agencies and their advisory bodies; professional impact evaluators; and, research programme managers at research and higher education organisations.

Blue Society Awards: _____
Winners of the **COLUMBUS Blue Society award for impactful Knowledge Transfer** will be announced at this event. Details on the nomination process will be announced on the COLUMBUS website.

Further Information: _____
To register interest for the event or for specific information on the COLUMBUS project, contact the COLUMBUS Project Manager:
Cliona NI Cheallachain (cliona@equatt.ie) @COLUMBUS_EU
WEB www.columbusproject.eu

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3rd Annual Conference – on January 24, 2018 (Brussels, BELGIUM)

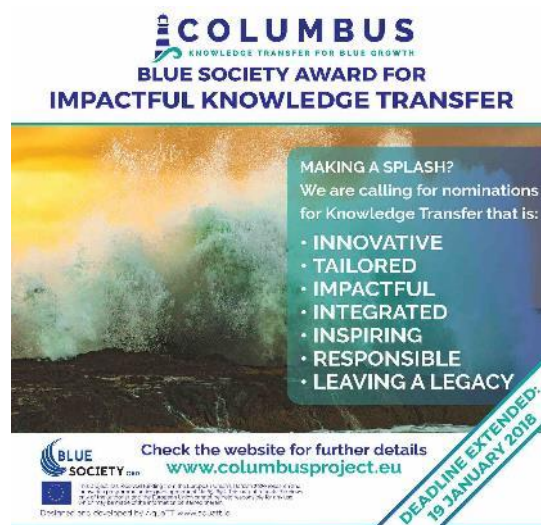


3rd Annual Conference Training Programme- on January 23, 2018 (Brussels, BELGIUM)



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COLUMBUS KNOWLEDGE TRANSFER FOR BLUE GROWTH Blue Society Award Announcement



COLUMBUS Celebration at the European Parliament with a Dedicated Event- February 22, 2018 (Brussels, BELGIUM)



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COLUMBUS

KNOWLEDGE TRANSFER FOR BLUE GROWTH

Annex 8. Media Kit (19 pages)



Media Kit 2017



The project is a consortium of 10 research and innovation partners from 8 countries (Spain, France, Germany, Italy, Greece, Portugal, Ireland, and the UK) who have joined forces to create a new methodology for knowledge transfer in the maritime sector. The project is funded by the European Union under the Horizon 2020 research and innovation programme.

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SUMMARY

Fact Sheets

1. The COLUMBUS Consortium & AquATT Expertise
2. A New Methodology of Knowledge Transfer, Generating Impact
3. Innovation and Sustainable Solutions for Blue Growth, Marine Sciences and the Blue Society
4. Making European Union Fundings Profitable
5. Communicating on the Importance of Marine and Maritime Sciences

Media Coverage Visual Elements Specific Vocabulary

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Fact Sheets



2. A New Methodology of Knowledge Transfer, Generating Impact

Based on the previous work of AquATT in the field of knowledge transfer, COLUMBUS has established a "Knowledge Transfer" methodology, a network of eight full-time knowledge transfer fellows whose role is to carry out knowledge transfer using a methodology based on the needs prioritised early in the project.

These fellows work across eight specific focus areas:

- Fisheries
- Aquaculture
- Maritime Biological Resources
- Marine Physical Resources
- Monitoring & Observation
- Marine Environment & Ecosystems
- Marine Governance & Management
- Maritime Transport & Logistics

COLUMBUS pays special attention to the regional dimension. Indeed the needs are different whether we are dealing with the Baltic or the Mediterranean sea for example.

The project also wants to develop a "Knowledge Transfer Handbook", a tool allowing others to adopt and easily replicate the methodology and process.



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4. Making European Union Fundings Profitable



"The European Commission, through its various programmes for research and technological development, has made a significant investment in the blue economy sector."

For all of its efforts, knowledge that is produced by the COLUMBUS maritime research centre from its 20-month project period, there will be a significant economic and social impact for the maritime sector, for example through the development of new products and services, the creation of new jobs, and the promotion of maritime and marine research.

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5. Communicating on the Importance of Marine and Maritime Sciences

Over the last few years, the importance of marine and maritime sciences has been highlighted by the European Union. It is important that the general public is not only aware of the importance of marine and maritime sciences, but also aware of the many benefits and services they provide.

The project has developed a communication strategy to make sure that the importance of marine and maritime sciences is communicated to the general public. This strategy includes the development of a communication plan, the creation of a communication budget, and the implementation of the communication plan.



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COLUMBUS

KNOWLEDGE TRANSFER FOR BLUE GROWTH



Media coverage

Press Release

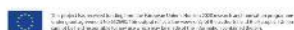
Non-scientific & Non-peer Reviewed Publication

Internet

eNewsletter

Websites and Webpages

Social Media

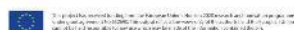


05-10-16 **News item - "EU BLUE GROWTH" - "COLUMBUS" - "KNOWLEDGE TRANSFER FOR BLUE GROWTH"**
 02-02-2021 **Community report: Increasing in Columbus Degree**
 08-08-2021 **EUROPEAN COMMISSION - "COLUMBUS" - "KNOWLEDGE TRANSFER FOR BLUE GROWTH"**
 08-08-2021 **News item - "COLUMBUS" - "KNOWLEDGE TRANSFER FOR BLUE GROWTH"**
 11-12-2021 **News item - "COLUMBUS" - "KNOWLEDGE TRANSFER FOR BLUE GROWTH"**
 20-07-2021 **News item - "COLUMBUS" - "KNOWLEDGE TRANSFER FOR BLUE GROWTH"**
 20-07-2021 **News item - "COLUMBUS" - "KNOWLEDGE TRANSFER FOR BLUE GROWTH"**

TO BE COMPLETED IN THE NEAR FUTURE

Social Media

05-10-16 **News item - "EU BLUE GROWTH" - "COLUMBUS" - "KNOWLEDGE TRANSFER FOR BLUE GROWTH"**



Visual elements

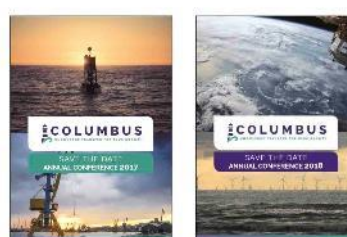
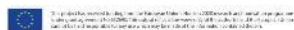


The Logo

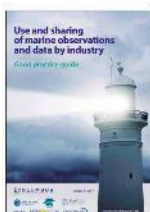
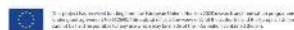
The COLUMBUS logo is composed of a stylized lighthouse and the text "COLUMBUS" and "KNOWLEDGE TRANSFER FOR BLUE GROWTH".



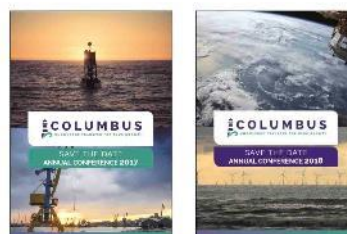
The COLUMBUS Factsheet



Leaflet of COLUMBUS' Annual Conferences in November 2017 and February 2018



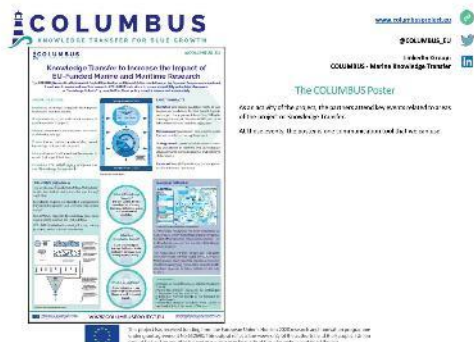
Leaflet of Guidelines on Use and Sharing of Marine Observations and Data by Industry, Version 1, 2017



Leaflet of COLUMBUS' Annual Conferences in November 2017 and February 2018



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Specific Vocabulary

In order for the methodology to be recognizable and easily applicable by potential future users, COLUMBUS has created a very specific vocabulary to employ during Knowledge Transfer activities.

"Knowledge Transfer Fellows", "Knowledge Outputs", "Competence Node", "End Users" are some examples of this vocabulary.

Knowledge Transfer (KT):

Knowledge Transfer is the concrete link between results of research projects on marine/maritime subjects and their application by companies, decision makers, citizens, etc. ...

Knowledge Transfer Fellows (KTF):

The Knowledge Transfer Fellow's role is the research of results of scientific projects financed by European programmes corresponding to the needs identified previously in the project. There are eight full-time Knowledge Transfer Fellows, one for each Competence Node.

Competence Node (CN):

A Competence Node is a sector of activity attributed to each Knowledge Transfer Fellow. The CNs are: marine physical resources, fisheries, monitoring and observation, marine environment and futures, maritime transport and logistics, marine biological resources, aquaculture and marine governance and management. For each node, the Knowledge Transfer Fellows identify Knowledge Outputs of European-funded projects which are worth being transferred to end-users.



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www.columbusproject.eu

@COLUMBUS_EU

Linked-In-Group:
COLUMBUS - Marine Knowledge Transfer

Knowledge Output (KO):

A Knowledge Output is a unit of knowledge that can be transferred. It can be a part of the result of a project, a specific methodology, or some knowledge needing development research to be industrialized. Once these Knowledge Outputs are identified, KTFs look for target and end users toward which the knowledge will be transferred.

Target and End-users:

Target users are those who receive the transferred knowledge. For one Knowledge Output, KTFs identify "a chain" of various target users. Along this chain, a Knowledge Transfer will be needed for each link between a target user and the following target user. The last part of the chain is the end-user. It's by accomplishing the last step towards the end-user that COLUMBUS adds value to the European projects as the well-identified end-user will generate impact.

Impact:

The impact of the results of research projects in marine and maritime sectors is one very important aspect of the COLUMBUS project. With the COLUMBUS methodology and thanks to the one-to-one transfer, the impact is easily measurable.



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Storytelling GOOD PRACTICES

Tell a story, don't just list facts. A story is an effective way to make people remember your message. Why not tell one to disseminate your results?

Which stories work best? A good story consists of a succession of events with a beginning, a middle and an end, a scene setter and a plot, a climax and a conclusion, all of this in a rich context. It is therefore more than a list of results achieved.

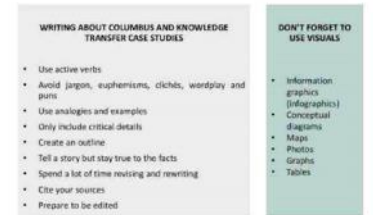
A good story is one with which others can identify, with the project content as a basis, and focused on a person (for example: the researcher). Such stories also allow your message to be conveyed through shared values that will touch people's hearts and provoke emotion, and the promise of a better future.



How to make the best use of Twitter to spread the word about COLUMBUS stories


- Submit your stories (500 to 1000 words max plus photos/videos) to AQUATT as soon as they can publish them on the COLUMBUS website.
- Once your story is published by AQUATT you can publish it on your organisation's website and newsletter.
- A TWITTER CARD is a good way to communicate on COLUMBUS stories. Twitter summary cards offer extended content. They are designed to give the reader a preview of your IT success stories before clicking through to the COLUMBUS website. It helps to drive traffic to the COLUMBUS website and to spread the word about COLUMBUS success stories.

Only AQUATT can implement the product. Once it is created you just have to to promote your cards and this will lead your followers to COLUMBUS website where they can read the success stories in full.




WRITING ABOUT COLUMBUS AND KNOWLEDGE TRANSFER CASE STUDIES

- Use active verbs
- Avoid jargon, euphemisms, clichés, wordplay and puns
- Use analogies and examples
- Only include critical details
- Create an outline
- Tell a story but stay true to the facts
- Spend a lot of time revising and rewriting
- Cite your sources
- Prepare to be edited



DON'T FORGET TO USE VISUALS

- Information graphics (infographics)
- Conceptual diagrams
- Maps
- Photos
- Graphs
- Tables



CONTACT AQUATT TO PROPOSE ARTICLES INCLUDING YOUR STORIES IN THE FOLLOWING PUBLICATIONS

Publications

Horizon is the EU Research & Innovation e-magazine. It covers the latest developments in EU funded research and innovation, communicating the priorities and achievements of EU-funded research, its impact on citizens' lives and its contribution to the EU goals of smart and sustainable growth. It is written by independent journalists on behalf of DG Research & Innovation and is updated at least three times a week with new articles.

For story suggestions or questions to the editor, e-mail: RTD-PUBLICATIONS@ec.europa.eu

Project stories

Articles about selected EU-funded research projects, which led to breakthroughs, discoveries and world-firsts by taking great ideas from the lab to the market, at the same time contributing to economic growth and creating jobs, and tackling societal challenges.

Contact : AQUATT to get in touch with COLUMBUS project officer

Sources:

Annex 10. Brokerage Events Good Practice (2 pages)



Brokerage events GOOD PRACTICES

Preparation	Recruitment
1. Recruit a brokerage event workshop team (3 to 4 people)	1. Explain the purpose and the framework of a COLUMBUS knowledge transfer/brokerage event to them
2. Review the RSD you will tender during the COLUMBUS knowledge transfer/brokerage event	2. Review the RSD to make sure that the brokerage event will be consistent with the plan
3. Determine the date and location of the MKN workshop while considering other related major / bigger events to facilitate the recruitment process	3. Set up a stakeholder involvement strategy and design a recruitment plan including the follow-up after the brokerage event
4. Start two months ahead of the potential date. Identify which stakeholders to involve and why. Create a list. Describe all potential end-users you want to recruit / make a quick analysis answering the "what's in it for me?" question.	4. Think of various incentives for stakeholder participation, such as professional development credit, presence of keynote speakers, publication of results, networking opportunities, an attractive setting linked to the workshop topic, etc.
5. Describe the RSD using straight wording (Who, What, Where, When, Why?)	5. Ask WP7 + WPIs for support in communication / fill in the template to order communication materials
6. Share the RSD description, the RSD and the targeted users / end-users, date and location of the workshop on Basecamp to the whole partnership	6. Attach an invitation for the brokerage event including all useful information and communication materials
7. Ask COLUMBUS partners to spread the word to their networks	7. Send invitations and recruit participants one month ahead of the date of the workshop at the latest. Be sure the purpose of the workshop is clearly detailed.



Communication

- In collaboration with the WP7 team, prepare a coherent communication strategy and communication tools
- Ask AQUATT to spread the word on the COLUMBUS website, Twitter account and LinkedIn account
- Make use of EU communication websites: This [Event](#) website displays research and innovation-related conferences and events. You can submit an event by using the "submit an event" functionality which is available on the left-hand side of the website.
- Make use of [Events](#) section on the CORDIS website. This website displays research-related conferences and events. Submitting an event requires one-time registration on the CORDIS website.

Facilitator

- Choose an experienced facilitator and include his/her in the recruitment process to help him/her to get to know the team and the audience

Content

- Prepare a detailed programme of the COLUMBUS brokerage event. You will find detailed information about different formats for the COLUMBUS brokerage event at www.columbus-project.eu. You can use one of the methodology sheets proposed in www.columbus-project.eu

Format

- Choose the format of the workshop from the Action Catalogue
- Prepare refreshments
- Ensure that the location and room are adapted to the format and the amount of expected attendees (prevent you from having a too large conference room)

Materials

- Prepare the workshop participant specific materials: content documents, photos, posters, films, etc.
- Upload the materials on BaseCamp and share them with the workshop participants and the COLUMBUS partners

Participants

- If you have not managed to recruit many participants yet, contact them again by telephone and e-mail. Revise the participant list, broaden the scope and look for new names. Use COLUMBUS partners' networks to connect you to the desired participants

Workshop

- Carry out the workshop face-to-face and online with the support of video streaming app (Periscope / Facebook live)
- Take pictures of the event

Activities

- Evaluate the process and results. Complete the Reporting Template. Collect and report best practices and policy issues.

Sources:

