

Acronym: COLUMBUS

Title: Monitoring, Managing and Transferring Marine and Maritime

Knowledge for Sustainable Blue Growth

Grant agreement n° 652690

Deliverable D.2.3

Report on Capacity Building for internal and external participants

February 2018 Version 1

Lead parties for Deliverable: AquaTT

Due date of deliverable: M36

Actual submission date: M36

Project funded by the European Commission within the Horizon 2020 Programme (2014-2020)	
Dissemination Level	
PU Public	X
PP Restricted to other programme participants (including the Commission Services)	
RE Restricted to a group specified by the consortium (including the Commission Services)	
CO Confidential, only for members of the consortium (including the Commission Services)	

All rights reserved

This document may not be copied, reproduced or modified in whole or in part for any purpose without the written permission from the COLUMBUS Consortium. In addition to such written permission to copy, reproduce or modify this document in whole or part, an acknowledgement of the authors of the document and all applicable portions of the copyright must be clearly referenced.

Acknowledgement

The work described in this report has been funded by the European Commission under the Horizon 2020 Framework Programme.



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 652690. This output reflects the views only of the author(s), and the European Union cannot be held responsible for any use which may be made of the information contained therein.

Contents

Executive Summary	3
Introduction	5
Internal Capacity Building	8
Preparation for Internal Capacity Building	8
Internal Training Course – Knowledge Fellows and Competence Node Leaders	9
Internal On-going Support	10
Internal Training Course - Partnership.....	11
Internal Training Course – Refresher	13
Internal Training Course – Competence Node Teams	13
External Capacity Building	14
External Training Course – Funding agencies	15
External Training Course – Researchers	17
Annex 2: External Training Announcement – Funding Agencies	18
Annex 3: External Training Announcement – Researchers.....	19

Executive Summary

Funded under the EU Horizon 2020 programme, COLUMBUS (www.columbusproject.eu) was a 36-month EU project (March 2015 - February 2018), involving 25 partners with a budget of €4 million.

Developed to “monitor, manage and transfer marine and maritime knowledge for sustainable blue growth”, COLUMBUS’s main objective was to carry out a large-scale pilot of Knowledge Transfer activities using a robust, replicable and process orientated methodology – the COLUMBUS Knowledge Transfer Methodology. To do so, COLUMBUS put in place nine full-time (minimum 24 person-months each) Knowledge Transfer Fellows, one for each Competence Node: Aquaculture, Fisheries, Marine Biological Resources, Marine Environment and Futures, Marine Governance and Management, Marine Monitoring and Observation, Marine Physical Resources, Marine Tourism, and Maritime Transport and Logistics. Working together as a remote team and active network, this combined critical mass team were tasked with learning and applying the COLUMBUS Knowledge Transfer Methodology onto identified Knowledge Outputs collected due their potential to overcome important bottlenecks or challenges affecting the marine and maritime sectors covered by each Competence Node.

By doing so, this allowed the COLUMBUS Knowledge Transfer Methodology to continuously evolve throughout the project, with amendments and improvements made on an ongoing basis as a result of live feedback from the Knowledge Fellows utilising it on the ground. COLUMBUS put a lot of emphasis on capacity building and training throughout the project, on an internal basis to providing initial training to the COLUMBUS Knowledge Fellows tasked to use the methodology within the project, but also externally to stakeholders wanting to learn more about the key principles, concepts and approaches to Knowledge Transfer.

Over the course of the COLUMBUS project, sixty individuals have been trained in the COLUMBUS Knowledge Transfer Methodology at AquaTT-hosted capacity building courses:

- Four internal training courses were run over the course of the project, with 27 individuals actively engaged in the COLUMBUS Knowledge Transfer process on a day-to-day basis, 14 of whom have held roles as Knowledge Fellows and the others in supporting roles as Competence Node leads or team members. As well as formal training, support on the methodology was provided to the Competence Nodes, Knowledge Fellows and teams via regular, remote teleconferences using a group and individual format. Regular engagement with the Knowledge Fellows allowed courses to be adapted to strengthen skills in key areas, particularly analysis and impact measurement.
- Two open, external training courses were also held towards the end of the COLUMBUS project, once the methodology had been validated by the efforts and activities of the project partners.

Following every training activity, feedback from participants was sought and observations were made to learn from every event and improve the content and approach for the next training activity. The details of each event, the key lessons learned and the improvements that were made are contained within this deliverable.

The courses evolved over time and the key amendments made to the COLUMBUS Knowledge Transfer Methodology are summarised below:

Learned from Internal Training Activity

- Better guidance on the required content and the level of quality when collecting Knowledge Outputs was provided.
- The templates used for every step of the COLUMBUS Knowledge Transfer Methodology were simplified.

Learned from External Training Activity

- Group-based activity with Knowledge Outputs relevant to the participants became the most successful and preferred method for the practical exercises.
- A video was produced to highlight the key principles and context for applying the COLUMBUS Knowledge Transfer Methodology, which has been a popular tool in the training sessions.

Whilst training 60 individuals is a positive start to developing a community of users and active champions of the COLUMBUS Knowledge Transfer Methodology, the reach of the capacity building courses has much more potential. In collaboration with partners working on Work Package 8, the leader of the Work Package responsible for developing the methodology, AquaTT, are actively exploring opportunities to further share the methodology and to promote the benefit of projects and programmes including Knowledge Transfer in their design.

Introduction

Funded under the EU Horizon 2020 programme, COLUMBUS (www.columbusproject.eu) is a 36-month EU project (March 2015 - February 2018), involving 25 partners with a budget of €4 million.

Developed to “monitor, manage and transfer marine and maritime knowledge for sustainable blue growth”, COLUMBUS’s main objective was to carry out a large-scale pilot of Knowledge Transfer activities using a robust, replicable and process orientated methodology – the COLUMBUS Knowledge Transfer Methodology. The result being qualitative case studies that illustrate how the project activities have successfully transferred knowledge to policy, industry, science and society, resulting in impacts that measurably contribute to “Blue Growth”.

Comprising eight work packages shown in Figure 1, COLUMBUS is centred on a Knowledge Transfer cycle (Work Packages 4, 5 and 6), where Knowledge Outputs are collected, analysed and transferred to a targeted audience, to create impact. The COLUMBUS Knowledge Transfer Methodology ensures that the transfer of knowledge is progressive, strategic, coordinated and effective.

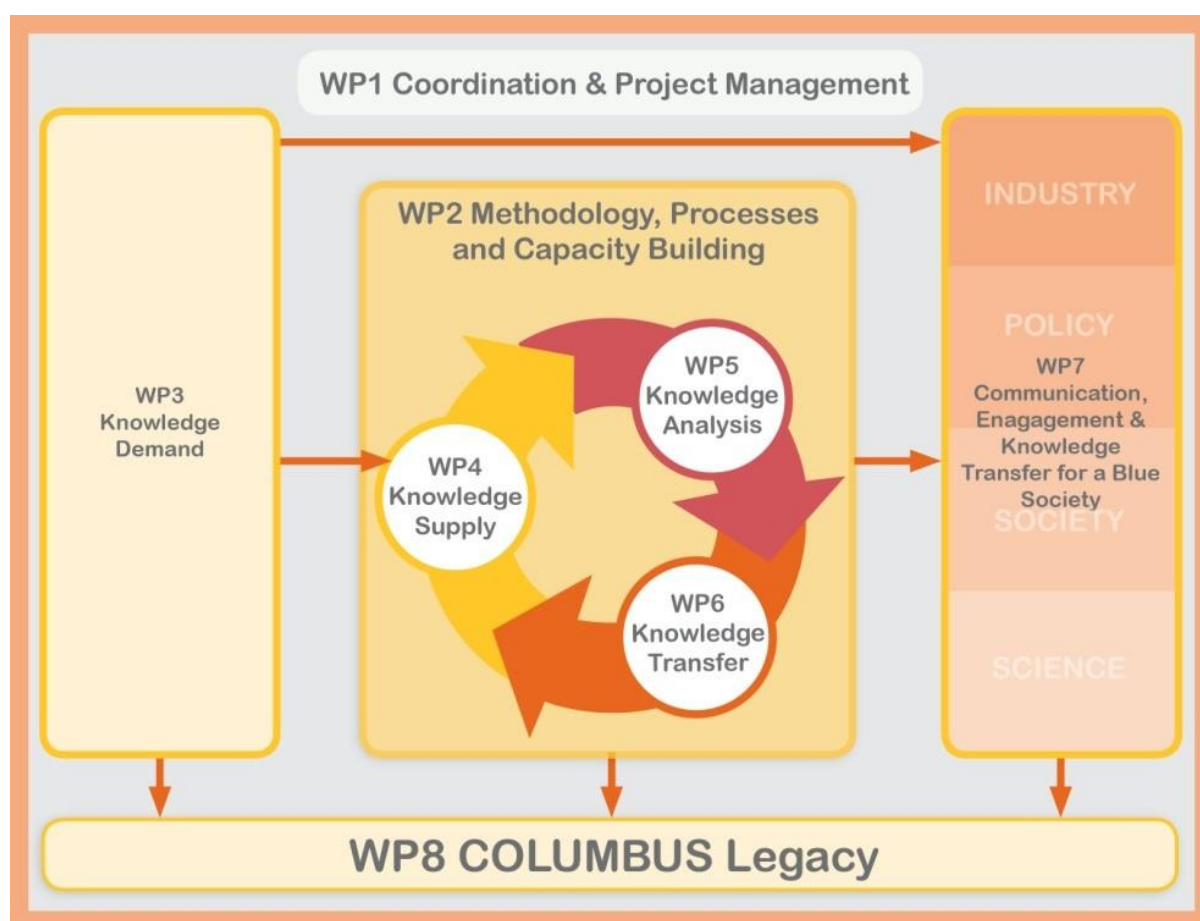


Figure 1: Structure of the COLUMBUS project

Central to this methodology is a team of Knowledge Transfer Fellows, whose role it is to perform the collection, analysis and transfer activities. Nine full-time (minimum 24 person-months each) Knowledge Transfer Fellows were employed from October 2016, one for each Competence Node: Aquaculture, Fisheries, Marine Biological Resources, Marine Environment and Futures, Marine Governance and Management, Marine Monitoring and Observation, Marine Physical Resources,

Marine Tourism, and Maritime Transport and Logistics¹. Working together as a remote team and active network, this combined critical mass team used a multi-disciplinary approach – the COLUMBUS Knowledge Transfer Methodology – to help achieve measurable impact and to develop a blueprint for future activities in this field of work. These efforts would ultimately contribute to the development of a thriving and sustainable marine and maritime economy.

By design, the Fellows had a support structure in place, in the form of a Competence Team, consisting of a Node Lead from their own organisation and elected partners (Figure 2).

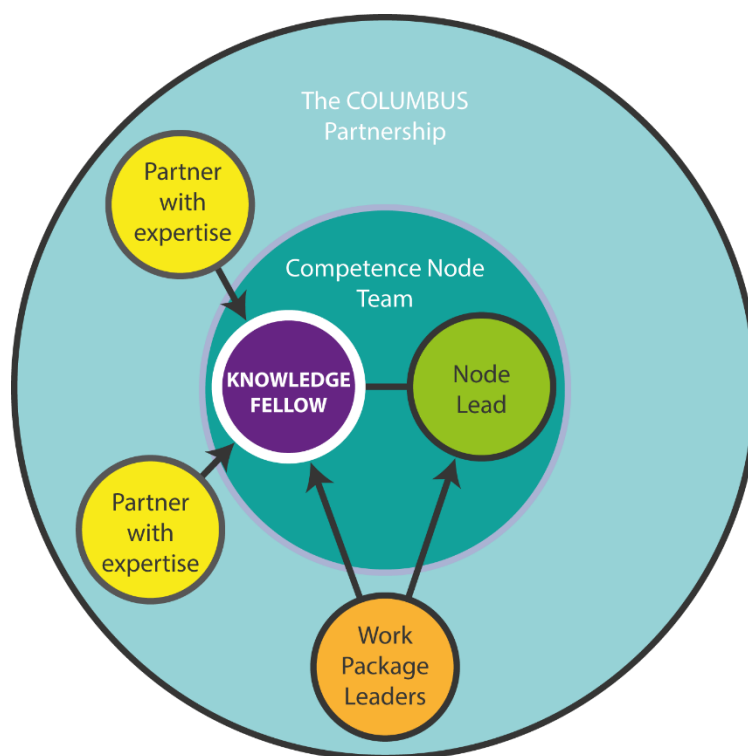


Figure 2: Support network surrounding the Knowledge Fellows

The COLUMBUS Knowledge Transfer Methodology is based on AquaTT’s experiences within previous projects, such as MarineTT² and its consultancy work for the Irish Environment Protection Agency, during which a resource kit³ was developed to help researchers bridge the gap between science and policy. It was foreseen that the methodology would evolve over the course of the COLUMBUS project, as would the training courses to reflect this. After each training course, feedback was gathered from attendees during the event and as they applied the methodology.

This deliverable describes each training event and illustrates the iterative evolution of the methodology. This methodology has since been tested by multiple individuals in all marine and maritime sectors for Knowledge Outputs destined for application by a range of users, including those from industry, policy, science and society.

¹ At mid-term review, the number of Competence Nodes reduced to eight, as the marine tourism Competence Node found difficulty in identifying knowledge to transfer.

² MarineTT (European Marine Research Knowledge Transfer and Uptake of Results)
https://cordis.europa.eu/project/rcn/93688_en.html

³ EPA Resource Kit: Bridging the Gap between Science and Policy – A Knowledge Transfer guide for Researchers
https://www.epa.ie/researchandeducation/research/researchpublications/researchreports/133_AquaTT_Interactive.pdf

Key Terms

A number of terms are regularly used in this document and the following provides an explanation of how these terms relate to each other. The definitions below may differ from other sources and were adopted for the purpose of COLUMBUS implementation.

Knowledge Transfer (KT): The term for the overall process of moving knowledge between knowledge sources to targeted potential users of knowledge. Knowledge Transfer consists of a range of activities which aim to capture, organise, assess and transmit knowledge, skills and competence from those who generate them to those who will utilise them.

Knowledge Output (KO): A unit of knowledge or learning generated by or through research activity. They are not limited to de-novo or pioneering discoveries but may also include new methodologies/processes, adaptations, insights, alternative applications of prior know-how/knowledge.

Knowledge Output Pathway (KOP): This can be one step or a series of steps required to carry a Knowledge Output to its Eventual Impact. Where there are a series of steps, it will include detailed mapping of the steps, the users involved at each step and their predicted role in the pathway to Eventual Impact.

Eventual Impact: The ultimate end benefit of the application of the Knowledge Output. It is defined as an enhanced situation that is contributing to “Blue Growth” including the implementation of the Marine Strategy Framework Directive (MSFD). See Step 5 for examples. *(This is not to be confused with the impact of an intermediary user taking up knowledge and transferring it down a step in the Knowledge Output Pathway to Eventual Impact. This is termed “Transfer Impact”).*

Knowledge Transfer Plan (KTP): The bespoke communication plan based on the profile of a Target User to carry the Knowledge Output one step along the Knowledge Output Pathway.

Transfer Impact: The demonstrable evidence that a Knowledge Output has travelled down a single step on the Knowledge Output Pathway.

Target User: The individual(s) who you have identified in your Knowledge Output Pathway to whom a Knowledge Fellow will transfer the Knowledge Output.

End User(s): The individual(s) who will apply the Knowledge Output at the end of the Knowledge Output Pathway.

Exploitation Partner: An external organisation/institution/individual who has an interest and/or expertise that may assist in transferring the Knowledge Output down the Knowledge Output Pathway to its Eventual Impact.

Internal Capacity Building

The Leader of COLUMBUS Work Package 2, Georgia Bayliss-Brown (AquaTT), was responsible for providing support to the Knowledge Fellows, updating the methodology and associated processes, which has evolved from previous EU funded Knowledge Transfer initiatives, and building capacity internally and externally to the project. As the Fellows were predominantly supported by the Competence Node Lead, it was determined that the first round of training would be provided to both the Knowledge Fellows as well as the Competence Node Leads. A further round of training would be provided to the wider COLUMBUS partnership.

Preparation for Internal Capacity Building

In advance of the 1st COLUMBUS Internal Capacity Training, AquaTT developed guidelines outlining the COLUMBUS Knowledge Transfer Methodology. Significant resource was spent on finding the most suitable and efficient method to:

- Identify relevant and collect quality Knowledge Outputs.
- Record the status of collected Knowledge Outputs using a Knowledge Output tracker.
- Analyse and prioritise Knowledge Outputs for transfer.
- Identify an Eventual Impact.
- Visualise a Knowledge Output Pathway.
- Profile a Target User.
- Structure a Knowledge Transfer Plan.
- Determine impact indicators.
- Report on activities in the form of a case study.

A 48-page training handbook containing the methodology and its associated templates was developed for the internal training courses. This handbook outlined the steps required to progress a Knowledge Output through the full Knowledge Transfer cycle. Since all the Fellows were working remotely from each other, internal and external communication processes were also developed and outlined in the Fellows' Terms of Reference (D2.1⁴). This also ensured that there was homogeneity in reporting.

As it was anticipated that the methodology and templates may change, a simplified, generic 18-page version of the training handbook was presented in D2.2⁵.

These guidelines have been developed to familiarise the project partners with the COLUMBUS Knowledge Transfer Methodology and will support them through the process of maximising the impact of existing research. Following training, individuals should be able to combine those practical skills that they have learnt with their own creativity and innovation to transfer research findings, or "Knowledge Outputs", to relevant policy, industry, science and societal stakeholders.

Knowledge Output: *A unit of knowledge/key learning generated by or through research activity. They are not limited to de-novo or pioneering discoveries but may also include new methodologies/processes, adaptations, insights, alternative applications of prior know-how/knowledge.*

⁴<http://www.columbusproject.eu/Reference%20Guide%20for%20Competence%20Node%20Interactions%20and%20Collaboration%20Final.pdf>

⁵<http://www.columbusproject.eu/D2%202%20Guidelines%20on%20carrying%20out%20COLUMBUS%20KT%20v2%20Final%2030.11.15.pdf>

Internal Training Course – Knowledge Fellows and Competence Node Leaders

The 1st COLUMBUS Internal Capacity Training course was held on 6-7 October 2015 (M8) in Co. Meath, Ireland. It was attended by 18 participants – eleven (of 26) partner organisations and all nine Knowledge Fellows and Competence Nodes. This training course was the first component of the internal capacity training activities to be provided and was targeted towards partners who were to be directly involved in the Knowledge Transfer Work Packages: the Knowledge Fellows and some Node Leads (Aquaculture, Marine Governance and Management, Marine Tourism and Maritime Transport and Logistics). The “Knowledge Transfer Work Packages” are Work Package 2, ‘Methodology’, led by Georgia Bayliss-Brown from AquaTT; Work Package 4, ‘Collection’, led by Cristina Costa from EurOcean; Work Package 5, ‘Analysis’, led by Rosa Fernandez from CETMAR; and, Work Package 5, ‘Transfer’, led by Simon Powell from Marine South East. The course was intended to familiarise the attending partners with the COLUMBUS Knowledge Transfer Methodology, which would support them through the process of transferring knowledge to contribute to Blue Growth and the successful implementation of the Marine Strategy Framework Directive.

The course combined theory and practical sessions, where all attendees were divided into three groups and carried a single Knowledge Output through all five steps of the methodology (Figure 3).

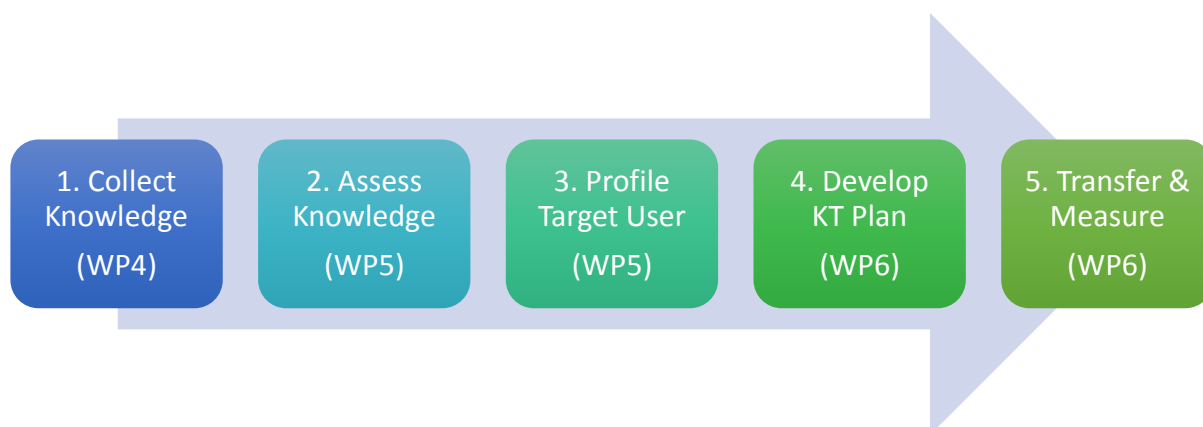


Figure 3: The five steps of the COLUMBUS Knowledge Transfer Methodology

All partners were provided with the first iteration of the COLUMBUS Knowledge Transfer Training Course Handbook, which was amended following feedback from the course.

The learning objectives for internal capacity training were:

1. To be able to define key terms relating to COLUMBUS Knowledge Transfer Methodology.
2. To be familiar with the Knowledge Output collection process, including Knowledge Output Table completion.
3. To be able to assess, analyse and prioritise Knowledge Outputs.
4. To be able to determine and describe the necessary pathway to achieve an Eventual Impact.
5. To be able to identify and profile potential End (and Target) Users and audiences.
6. To learn how to plan, carry out and measure Knowledge Transfer.
7. To be able to assess and measure the impact that has been achieved from implemented Knowledge Transfer activities.
8. To be able to develop case studies illustrating successes of the COLUMBUS Knowledge Transfer Methodology.

Internal On-going Support

Since the Fellows began implementing the methodology in October 2015 (M8), assistance to familiarise and support the Fellows has been extensive and beyond the expectations outlined in the project's 'Description of Action'. Many Fellows have required extra support because they (a) needed to utilise their Competence Node Team more effectively; (b) required more support from their Competence Node Leader and/or organisation; or (c) were focusing on tasks outside of COLUMBUS or sharing the role with another member of staff. This inconsistency with the project design (nine full-time Knowledge Fellows supported by a Competence Node Lead and team) has led, in some cases, to a reduced understanding of the methodology.

Following the 1st capacity building training course, the Knowledge Fellows were set a task of collecting Knowledge Outputs from the Oceans of Tomorrow projects (D4.6⁶) and some projects identified by keywords that were aligned with their Competence Node needs (D4.1⁷ and D4.3⁸). Once the Knowledge Outputs were collected and the Fellows progressed to the next step in the process ("assess knowledge"), it was clear that the quality of the Knowledge Outputs collected varied across the Competence Nodes. To overcome these challenges, the following amendments were made:

- Additional descriptions of the required information were added under each category of the Knowledge Output Table (the spreadsheet used to collect Knowledge Outputs from each project).
- A quality control document was developed and provided to all Fellows, outlining the format of information that should be included under each category.

AquaTT have also been hosting and recording the minutes of monthly teleconferences with the Fellows and leaders of the Knowledge Transfer Work Packages since the 1st Capacity Building Training took place. Ten teleconferences were held in total: 10 November 2015, 25 November 2015, 3 December 2015, 14 January 2016, 18 February 2016, 22 March 2016, 18 April 2016, 25 May 2016, 23 June 2016 and 5 August 2016. These meetings were designed to allow the Fellows the opportunity to share their experiences and examples of Knowledge Output Pathways and Transfer Plans; and also, to give feedback on the methodology being applied. At the 4th Partner Meeting in July 2016, it was determined that the Fellows would rather be provided support via individual meetings. Consequently, AquaTT started holding individual meetings with the Fellows beyond August 2016 (25 in total) to provide support and guidance as they progressed through the collect, analyse and transfer phases. When they became familiar with the methodology, the Fellows engaged directly with CETMAR and Marine South East to discuss the intricacies of their activity. AquaTT joined these meetings upon request.

AquaTT completed regular spot checks on Knowledge Output Tables, Knowledge Output Pathways and Knowledge Transfer Plans from the Fellows and provided feedback on their efforts across all stages of collection, analysis and transfer. It also acted as a one-stop shop for queries about the methodology of Knowledge Transfer in general.

⁶ COLUMBUS Oceans of Tomorrow Pilot Collection Exercise (under development and due by the end of February 2018)

⁷ COLUMBUS Inventory of Relevant Projects by Priority Focus Area

http://www.columbusproject.eu/COLUMBUS_D4%201_Inventory_Relevant_Projects_Priority_Focus_Area_Final.pdf

⁸ COLUMBUS Report on Knowledge Output identification

http://www.columbusproject.eu/COLUMBUS_D4%203_Report_KOs_Identification.pdf

Challenge: From October 2015, the Fellows progressed to collect 1,199 Knowledge Outputs by July 2016. Approaching M18, as COLUMBUS was meant to be a cyclical process, it was important to drive the Fellows to finish the collection phase and make progress with analysis. It was clear during the Fellow teleconferences that Fellows had become comfortable with collection but were less confident in performing analysis and transfer activities. Recognising this trend, and upon reviewing feedback received from the Fellows, it was clear that the following concerns needed to be overcome:

1. The Knowledge Output Table was requesting too much detail for non-priority Knowledge Outputs.
2. The templates that were provided for each step were too prescriptive.
3. Many Fellows were not hosting analysis meetings, as prescribed by the methodology.
4. Some Fellows felt that they were not getting a benefit from the monthly teleconferences and would rather have one-to-one meetings when required.

ACTION IMPLEMENTED: To overcome these challenges, the following amendments were made:

- The Knowledge Output Table was divided into two parts in March 2017: the first section was to be completed for all collected Knowledge Outputs (the information required by the Marine Knowledge Gate) and the second was for prioritised Knowledge Outputs, requiring further detail on the status of the Knowledge Output, End User description, potential impact and project exploitation.
- Nine templates were originally designed for the Fellows to complete as they progressed through the COLUMBUS Knowledge Transfer Methodology: a Knowledge Output Table to be completed by the Project Coordinator; a second Knowledge Output Table for the Fellow; templates to map the value chain; identify a project scenario; design a Knowledge Output Pathway; identify and profile a Target User; develop a Knowledge Transfer Plan; describe impact indicators; and write a case study. These were reduced to four templates and shared with the Fellows in February 2017.
- A second training course would be delivered at the 4th Partner Meeting where particular focus would be given to the importance of analysis meetings and how they should be performed.
- A final Fellow teleconference was held on 5 August 2016 and one-to-ones were agreed directly between the Leader of Work Package 2 and the individual Fellows thereafter.

Internal Training Course - Partnership

The 2nd COLUMBUS Internal Capacity Training course took place at the 4th Partner Meeting in Vigo, Spain, on 12-13 July 2016. 30 COLUMBUS partners took part in the training which focussed on Steps 2 to 5 of the methodology, comprising analysis and transfer. On the first day of the Partner Meeting, AquaTT presented the simplified templates to the partnership. Following this, CETMAR hosted two training sessions: one covering the Knowledge Output landscape and Pathway and the second covering profiling Target Users. The final training session of the day was hosted by Marine South East and covered how to develop Knowledge Transfer Plans and impact indicators.

In each session, key definitions (Annex 1), the core theory and step-by-step processes were outlined. Tips and hints were also provided. Attendees were then divided into four groups to complete the associated templates:

- Mapping a Knowledge Output landscape and designing a Knowledge Output Pathway.
- Profiling a Target User.
- Designing a Knowledge Transfer Plan with impact indicators.

These three sessions highlighted the importance of understanding the Knowledge Output and its application and becoming familiar with the landscape in which it sits. Once this is appreciated and achieved, most easily through hosting an analysis meeting with experts, identifying a pathway to an eventual impact (and application of the Knowledge Output) can become a simple task – one that further supports the remaining tasks. Once the pathway-to-impact (known as a Knowledge Output Pathway) is defined, and the Target Users are identified and profiled, a targeted Knowledge Transfer Plan can be completed using this understanding.

The learning objectives for this training course were:

1. To be able to utilise Competence Node teams, partners and external experts to validate, understand the potential of, and prioritise Knowledge Outputs.
2. To be able to determine Knowledge Output Pathways.
3. To be able to determine the potential ambition of activities.
4. To be able to profile a Target User to gain valuable information to inform a Knowledge Transfer Plan.
5. To be able to mine the experience and expertise of Competence Node teams who may be familiar with the Target User or similar types of stakeholder.
6. To be able to define Knowledge Transfer and understand how it differs from dissemination.
7. To understand why and how to measure impact.
8. To be able to write a case study on Knowledge Transfer activity.

Challenge: In July 2016, a few Fellows were beginning to develop their Knowledge Transfer Plans and, with this, describe impact indicators. Whilst they were hoping for this to be prescriptive, as COLUMBUS reaches across many sectors and applications, there was no such rule. In addition, some partners expressed during the training that there are many possible routes that can be followed to reach one Eventual Impact, and that Fellows should design their Knowledge Output Pathways with many routes. Many comments were made by Fellows to provide additional guidance in this area:

1. Impact indicators are difficult to identify and measure when impact may be experienced beyond the lifetime of COLUMBUS.
2. Knowledge Output Pathways are not linear, and the templates do not support a non-linear story.

ACTION IMPLEMENTED: To overcome these challenges, the following amendments were made:

- The methodology was adapted to advise that impact indicators should be aligned with each progression along the Knowledge Output Pathway, ensuring that the intended impact at each progression is S.M.A.R.T. (specific, measurable, achievable, relevant and time-bound).
- It was recognised that the templates force an iterative process to be presented in a linear format. Whilst the templates are necessary for reporting within the COLUMBUS project, it is clear that in external training it should be explained that the templates should be used to guide the user, providing checkpoints, rather than dictate the process.

Internal Training Course – Refresher

A year into the project, two new Fellows were employed to provide support to existing Fellows. A refresher course was offered to the whole Fellowship and provided to these new Fellows in Dublin (Ireland) on 10-11 October 2016. These Fellows were introduced to the COLUMBUS Knowledge Transfer Methodology and worked through all steps of the methodology with Knowledge Outputs that they were working on in their day-to-day supporting roles of the Environment and Futures and Marine Physical Resources Competence Nodes.

Challenge: Prior to this event, we asked Fellows to bring their own Knowledge Outputs with them to work on. One Knowledge Output was technological, and the landscape was relatively simple. The other was a scientific method and the Fellow was unfamiliar with the landscape, meaning it was difficult to apply the methodology to this Knowledge Output within the training course since time was limited. From this, it was clear that the following concern needed to be addressed:

1. Knowledge Outputs used as examples within the training courses need to be tried and tested real-life examples.

ACTION IMPLEMENTED: To overcome these challenges, the following amendments were made:

- The Knowledge Outputs of all future training courses have robust supporting Knowledge Output Pathways, Knowledge Transfer Plans and impact indicators associated with them. This is to ensure that they can be used as examples that can stand up to scrutiny.

Internal Training Course – Competence Node Teams

To assist progress of the Aquaculture Competence Node, training was also provided to five members of staff at Bord Iascaigh Mhara (BIM) (forming the extended Competence Node Team for the sector) on 3 February at BIM, Dun Laoghaire, Ireland. A new member of staff at AquaTT, employed as a full-time Knowledge Fellow, also joined the training course. This individual took up the role of the Knowledge Fellow for the Marine Biological Resources Competence Node to cover the departure of the original, responsible partner from the project.

Challenge: An introduction to the COLUMBUS methodology was found to be overwhelming to those who entered the project at a later stage; particularly as there are many abbreviations and steps that the partnership have become familiar with overtime.

ACTION IMPLEMENTED: In December 2017, a video explaining the reasons for targeted Knowledge Transfer activity over traditional dissemination activities and introducing the COLUMBUS Knowledge Transfer Methodology was developed. The video was circulated after this training course and many comments were received stating that it should have been presented as an introduction.

To overcome these challenges, the following amendments were made:

- All training courses will be opened with the explanatory video.

External Capacity Building

COLUMBUS was funded to identify, collect and transfer Knowledge that had been generated through closed or close to closing projects, which meant a lot of work had to be done retrospectively. Whilst there is value in looking backwards to ensure that the impact potential of existing knowledge is met, it is not ideal. Best practice would be to have a Knowledge Transfer process included in a project's design from proposal stage. COLUMBUS recognised that such a change can be driven by researchers and those funding research. Accordingly, the external training that was provided targeted these two groups: funding agencies and researchers, where the importance of Knowledge Transfer was presented as well as tools and methodologies – used to better ensure that impact and value is created – were provided.

The first External Capacity Building Activities took place in M33, in parallel with the 2nd COLUMBUS Blue Society Knowledge Transfer Annual Conference (November 2017), and were targeted to funding agencies. A second External Capacity Building Activity took place in parallel with the 3rd and final COLUMBUS Blue Society Knowledge Transfer Annual Conference (January 2018), and was targeted towards researchers.

In advance of the External Capacity Training courses, AquaTT developed a slide deck to introduce the finalised COLUMBUS Knowledge Transfer Methodology. This slide-deck, the examples used, and the exercises performed, were adjusted to suit the audience once individual registrations were received. Flyers were developed to launch the two events, 'Creating Knowledge Impact by Knowledge Transfer for Support Funding Agencies' (Annex 2) and 'Creating Knowledge Impact by Knowledge Transfer for the Research Community' (Annex 3). Both events were advertised via the following: a press release; a news item on the COLUMBUS website; a feature in AquaTT's Training News (6,000 recipients); shared on LinkedIn and Twitter; invitations sent to COLUMBUS partners, previous event attendees and relevant project databases within AquaTT's networks; and targeted individuals whom were also approached with an invite. Free registration was made available on EventBrite.

Challenge: Whilst COLUMBUS is focused on creating impact retrospectively from past and existing projects, it was important to ensure that attendees recognised that funding calls and responding projects can be designed to include Knowledge Transfer activities:

1. COLUMBUS training materials are focused on creating retrospective impact on past and exiting projects.

ACTION IMPLEMENTED: To overcome these challenges, the following amendments were made:

- The training course materials were developed to cover impact and value creation for existing and past projects, as well as provide recommendations on how funding calls and projects can be designed to include Knowledge Transfer activities.

External Training Course – Funding agencies

Whilst we recognise that it is important for researchers to better understand how they can design their projects with Knowledge Transfer in mind, and to perform Knowledge Transfer activities to ensure that their research is applied, and its potential impact is achieved, funding agencies can also play a role in this. There are many opportunities where funding agencies can adjust their current mechanisms to better ensure that research creates value. Among these are ensuring that calls are aligned with real needs; requesting that pathways-to-impact and a Knowledge Management strategy is included in applications; adjusting evaluation guidelines for the impact section; enforcing Knowledge Output collection at reporting stages; and supporting Knowledge Transfer activities financially. Accordingly, AquaTT decided to develop a training course introducing COLUMBUS's concepts specifically for funding agencies and those that support them, e.g. national contact points, evaluators and decision makers.

The first External Training Course, 'Creating Knowledge Impact by Knowledge Transfer for Support Funding Agencies' took place in Brussels, Belgium, on 6 November 2017 (2pm – 6pm). Nine people signed up to the course and six individuals attended: three members of staff from different departments at Project Management Jülich, a German funding agency; the Scientific Project Officer for the European Marine Biological Research Infrastructure Cluster (EMBRIC); the Director of Public Engagement at Trinity College Dublin, and a representative from the European Commission. One member of staff from Project Management Jülich did not attend. Two representatives from EASME and the European Parliament did not attend. The event was hosted in Brussels to bring the training to the city where many of the targeted audience are based. Unfortunately, the targeted audience is very busy by nature, and providing free registration allows for registrants to cancel with no loss.

The training course was divided into three sessions: (1) How to collect and validate knowledge from research projects; (2) How to analyse Knowledge Outputs from research projects; and (3) How to map a pathway to impact and customise Knowledge Transfer Plans. Each session was followed by a practical exercise and group discussion.

The learning objectives for this training course were:

1. To know what knowledge should be collected and in how much detail.
2. To identify potential mechanisms that could be used by funding bodies to collect knowledge.
3. To understand what the pros and cons are for different approaches and timing of collection.
4. To become familiar with processes that could be used to ensure high quality collection.
5. To understand why analysis is the most important stage of Knowledge Transfer.
6. To be able to determine who should be involved in analysis.
7. To be aware of potential mechanisms that could be used by funding bodies to analyse Knowledge Outputs.
8. To understand what the outcome of the analysis process should be.
9. To be familiar with the term, "eventual impact".
10. To recognise the difference in realistic impact creation within projects vs post projects.
11. To understand the difference between Target Users and End-users.
12. To be able to map specific Knowledge Output Pathways (KOPs) for units or clusters of knowledge.
13. To be able to identify Target Users and design customised Knowledge Transfer Plans (KTPs).
14. To be able to measure impact of transfer and impact indicators for eventual impact.

Challenge: The course was run for four hours however a couple of attendees were late to arrive. Furthermore, many registrants who did not appear failed to cancel. This meant that there was a delay in starting the event, which ate into the time required to complete the final practical. The Knowledge Outputs used as examples were, in some cases, industry-focused or outside the area of familiarity to those who were in attendance. Whilst the slides were adapted for the audience, more relevant Knowledge Outputs could have been provided. Thus, the following lessons were identified:

1. Registration should be launched well in advance of its date and distributed more widely.
2. Knowledge Outputs used to illustrate the practical exercises should be chosen with the expertise of the individuals in attendance in mind.
3. Due to late arrivals, insufficient time remained for the final practical.

ACTION IMPLEMENTED: To overcome these challenges, the following amendments were made:

- Registration was launched six weeks ahead of the next event, and partners were asked to actively promote the event.
- A range of Knowledge Outputs that had successfully been transferred using the COLUMBUS Knowledge Transfer Methodology were selected for use at the following training course. Participants were then able to choose which one they were most familiar with to use as the basis of the practical exercises.
- Future courses will run for a minimum of five hours to ensure there is enough time for theory, practical exercises and breaks.

External Training Course – Researchers

The second External Training Course, 'Creating Knowledge Impact by Knowledge Transfer for the Research Community', took place in Brussels, Belgium, on 23 January 2018 (1pm – 6pm). 15 people signed up to the course and 11 individuals attended: the owner of Infohackit (events that support researchers, students and experts to communicate concepts, processes and data); the Communication Officers for Seascope Consultants and the European Marine Biological Research Infrastructure Cluster (EMBRIC); the Project Managers from the University of Bergen; Marine Scotland; the Federation for European Aquaculture Producers (FEAP); the French Agency for Biodiversity; START-UP, a support and networking service for economic operators from the African, Caribbean, and Pacific Group of States and the European partners; the owner of a maritime business incubator; the European Funding Adviser for the Danish Technological University; two business managers from National Oceanography Centre and the Danish Technological University, and a marine biologist with an interest in impactful science communication. Representatives from the Interdisciplinary Centre of Marine and Environmental Research (CIIMAR), Vrije Universiteit Brussel, the Romanian Executive Agency for Education, Research, Development and Innovation Funding (UEFISCDI) and the Hellenic Centre for Marine Research (HCMR) did not attend.

The structure of the training course its learning objectives matched those on the previous external training course; however, the practical exercises were embellished following previous observations and feedback. The first practical exercise asked individuals to review the quality of a Knowledge Output before feeding their combined thoughts back as one of four groups. These groups were maintained for the following exercises where they were asked to lay out a Knowledge Output Pathway and discuss the outcoming Knowledge Transfer Plan.

Challenge: The course was run for five hours, which was an improvement and allowed more time for the participants to engage in the practical exercises and share time for discussions. The practical sessions were individual-based initially and then progressed to a group setting. This allowed people to experience the benefit of sharing ideas and illustrated that there is no correct answer in Knowledge Transfer and that one Knowledge Output can have many applications. Whilst the participants left with useful tools, it was illustrated that Knowledge Transfer takes more time than dissemination and an individual's network is worth more when combined with others. The main lesson to take away from this course was that it would be possible to run this course online, which would provide access to many more interested parties:

1. An online course would allow access to many more interested parties.

ACTION IMPLEMENTED: To overcome these challenges, the following amendments were made:

- AquaTT are investigating funding opportunities to develop an online course on the COLUMBUS Knowledge Transfer Methodology, which would be accessible by all research sectors beyond marine and maritime sciences.

Annex 2: External Training Announcement – Funding Agencies



TRAINING COURSE: CREATING IMPACT BY KNOWLEDGE TRANSFER TO SUPPORT FUNDING AGENCIES

BROUGHT TO YOU BY EUROPE'S KNOWLEDGE TRANSFER FLAGSHIP PROJECT, **COLUMBUS** IS OFFERING A **FREE TRAINING** COURSE AS A SIDE EVENT TO THE 2ND INTERNATIONAL BLUE GROWTH KNOWLEDGE TRANSFER ANNUAL CONFERENCE.

THIS TRAINING COURSE IS INTENDED FOR ALL THOSE WHO ARE INVESTED IN ACHIEVING **GREATER IMPACT** FROM THE RESEARCH THAT THEY SUPPORT: SUCH AS FUNDING AGENCIES, EVALUATORS, NATIONAL CONTACT POINTS AND DECISION MAKERS.

**CROWNE PLAZA
BRUSSELS, BELGIUM
6 NOVEMBER 2017
2PM-6PM**

WHAT TO EXPECT

- An introduction to the robust and validated **COLUMBUS** Knowledge Transfer Methodology
- Case studies of successful Knowledge Transfer
- Considerations for funding agencies to support an increase of impact from funded research projects

TO REGISTER YOUR INTEREST, VISIT WWW.COLUMBUSPROJECT.EU



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 652890. This output reflects the views only of the author(s), and the European Union cannot be held responsible for any use which may be made of the information contained therein.

Designed and developed by AquaTT www.aquatt.ie

**COLUMBUS
PROJECT MANAGER:**

Cliona Ni Cheallacháin

cliona@aquatt.ie

Annex 3: External Training Announcement – Researchers



TRAINING COURSE: CREATING IMPACT BY KNOWLEDGE TRANSFER FOR THE RESEARCH COMMUNITY

BROUGHT TO YOU BY EUROPE'S KNOWLEDGE TRANSFER FLAGSHIP PROJECT, **COLUMBUS** IS OFFERING A **FREE TRAINING COURSE** AS A SIDE EVENT TO THE 3RD INTERNATIONAL BLUE GROWTH KNOWLEDGE TRANSFER ANNUAL CONFERENCE.

THIS TRAINING COURSE IS INTENDED FOR MEMBERS OF THE RESEARCH COMMUNITY WHO ARE INVESTED IN ACHIEVING **GREATER IMPACT** FROM THEIR PROJECTS AND PROGRAMMES: SUCH AS RESEARCHERS, MANAGERS, AND PROJECT COORDINATORS.

**CROWNE PLAZA
BRUSSELS, BELGIUM
23 JANUARY 2018
1PM-6PM**

WHAT TO EXPECT

- An introduction to the robust and validated **COLUMBUS** Knowledge Transfer Methodology
- Case studies of successful Knowledge Transfer
- Considerations for project design to improve knowledge management

TO REGISTER, VISIT [HTTPS://COLUMBUS-TRAINING-COURSE-FOR-RESEARCHERS.EVENTBRITE.IE](https://columbus-training-course-for-researchers.eventbrite.ie)



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 652890. This output reflects the views only of the author(s), and the European Union cannot be held responsible for any use which may be made of the information contained therein.

Designed and developed by AquaTT www.aquatt.ie

**COLUMBUS
PROJECT MANAGER:**

Cliona Ni Cheallacháin

cliona@aquatt.ie