Advanced Design Tools for Ocean Energy Systems Innovation, Development and Deployment

Deliverable D9.3

Impact of dissemination and communication activities – 1st annual report

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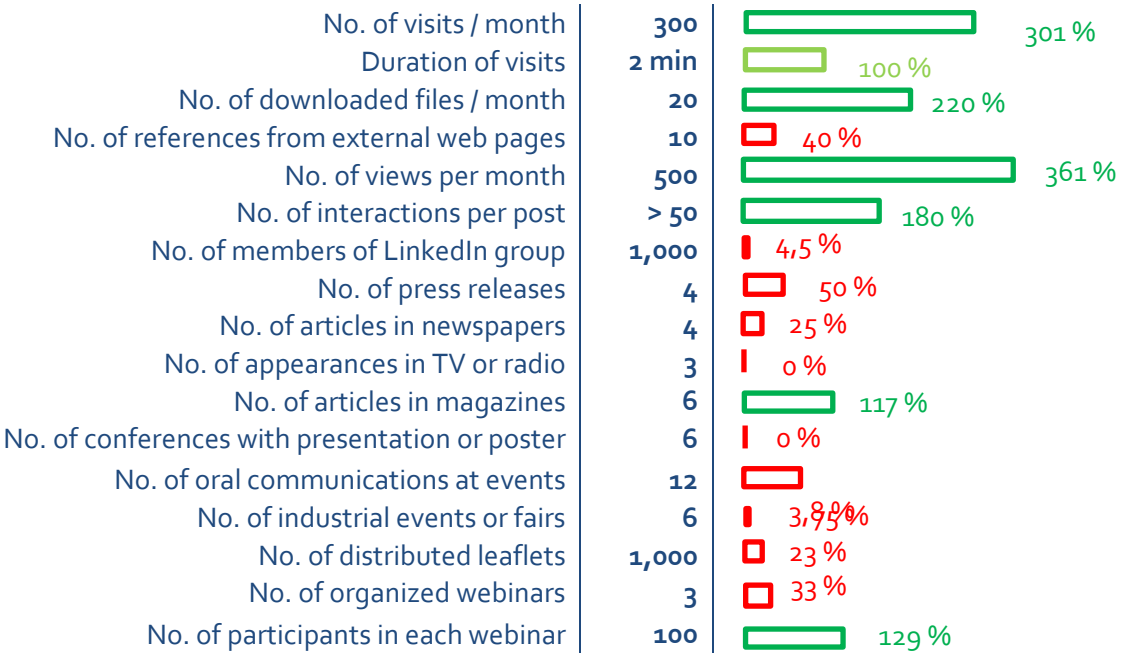
EXECUTIVE SUMMARY

The dissemination and communication activities are critical to maximize the impact of the project through proactive promotion of its objectives and methods and, in particular aiming at the exploitation of the design tools which will be produced and released. The consortium decided that all dissemination, communication, training and education activities will be reported and evaluated at the end of each year of the project. This document is the first annual report on dissemination and communication activities regarding DTOceanPlus. It corresponds to the deliverable D9.3.

During this first year of project, actions were exclusively dedicated to raising awareness of DTOceanPlus' objectives, results, benefits, use and applicability through diverse channels to all interested parties.

Project website appears as the main channel for information dissemination, but social media are proving to be valuable assets in generating traffic on the dtoceanplus.eu. Mainstream media are a good way to reach the general public. Press conferences should help in improving impacts. DTOceanPlus was presented in several meetings, workshops and conferences at regional and international levels. The promotion of the project through events will be intensified during second year of DTOceanPlus thanks to communication on the first achievements. Because the α version of the tools is still under development, all actions regarding scientific papers submission, data set deposits and training activities are planned or in preparation. Most of them will be implemented in 2020.



TARGET AND ACHIEVEMENT DEGREE OF STARTED ACTIVITIES REGARDING INITAL OBJECTIVES FOR THE WHOLE PROJECT PERIOD

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

ABBREVIATIONS AND ACRONYMS

AAU: Aalborg University
DCP: Dissemination and Communication Plan
DT: Design Tools
ESC: Energy Systems Catapult
ETP: Education and Training Plan
EU: European Union
EWTEC: European Wave and Tidal Energy Conference
FEM: France Energies Marines
IEA: International Energy Agency
ICOE: International Conference on Ocean Energy
M: Month
MRE: Marine Renewable Energy
OEE: Ocean Energy Europe
OES: Ocean Energy System
RAMS: Reliability, Availability, Maintainability and Survivability
UEDIN: The University of Edinburgh
UK: United Kingdom
URL: Uniform Resource Locator
WAVEC: WavEC Offshore Renewables
WES: Wave Energy Scotland
WP: Work Package

1. INTRODUCTION

The dissemination and communication activities are **critical to maximize the impact of the project** through proactive promotion of its objectives and methods and, in particular aiming at the exploitation of the design tools which will be produced and released.

Released during the first year of the project, the **dissemination and communication plan** (DCP) - Deliverable **D9.2** and the **education and training plan** (ETP) - Deliverable **D9.8** include all the activities to be implemented over a given period of time. As real dashboards, they provide an overview of the objectives to be achieved, the audience to be targeted, the key messages to be developed, the tools and channels to be used and the necessary contributors.

The consortium decided that all dissemination, communication, training and education activities will be **reported and evaluated at the end of each year** of the project. This periodic evaluation guarantee that all stakeholders are reached and provided with appropriate information. It is also a good opportunity to **provide feedback** on what works and what needs refinement. This document is the **first annual report on dissemination and communication activities** regarding DTOceanPlus. It corresponds to the **deliverable D9.3** which is a public deliverable produced in the context of WP9-Exploitation, Dissemination and Education, Task 9.2-Communication activities and dissemination of project results.

2. STRATEGY IN BRIEF

2.1 OVERVIEW OF THE STRATEGY

Dissemination and communication activities are carried out to ensure that the project research and practical outcomes are widely disseminated to the appropriate target audiences, at appropriate times along the project lifecycle via appropriate methods with the contribution of all partners of the consortium.

FIGURE 1. OVERVIEW OF THE DISSEMINATION AND COMMUNICATION STRATEGY

2.2 OBJECTIVES

The dissemination and communication activities mainly aim at **maximising the project impacts** on the wave and tidal energy sector and the European value chain in general. More specifically, an additional objective was targeted during the stage 1 (M1-M12): **Raising awareness** of project's objectives, results, benefits, use and applicability through diverse channels to all interested parties. Regarding the education and training task, the primary objective is to **promote the suite of tools and showcase the capabilities thereof**.

2.3 TARGET AUDIENCE

As the benefits of DTOceanPlus are wide ranging and the success of the sector depends upon many actors then the target groups for dissemination activities will necessarily come from a broad range of stakeholders. Target groups have been identified and fall mainly into one of three groups mentioned in Table 1.

TABLE 1. DTOCEANPLUS TARGET GROUP

TARGET GROUPS	SUBGROUPS
Primary users of the design tools	o Technology developers o Project developers o Design offices o Public funding bodies o Private investors
Other key stakeholders	o Policy makers o Regulators o Standards organizations o Insurance providers o Other actors in the supply chain o Research organizations
General public	o Environmental NGOs o Citizen organisations o Students o Individual citizens

2.4 KEY MESSAGE

The DTOceanPlus **main message** is: "*DTOceanPlus project will develop and demonstrate an advanced open source suite of tools for the selection, development, deployment and assessment of ocean energy systems*." It contains a restrain and specific set of key words to maximise communication impact. Complementary messages are also used. They are described in detail in the DCP.

2.5 CHANNELS AND TOOLS

Most of the channels and tools used are specific to the type of activities (See Table 2).

TABLE 2. ACTIVITIES TYPES, CHANNELS AND TOOLS

ACTIVITIES TYPES	CHANNELS	TOOLS
Communication and dissemination	o Website o Social media o Mainstream media o Scientific & technical publishing o Events (conferences, fairs, meetings…)	o Leaflet o Brochure o Poster o Presentation (general) o Didactic video
Education and training	o Website o Events (technical workshops) o Online webinars o Training sessions and visits	o Pedagogical scenarios o Tutorials o Presentations (specific aspects)

2.6 OVERALL TIMELINE

DTOceanPlus is a 3-year project, running from May 2018 to April 2021. The project has six monthly milestones, culminating in the release of alpha, beta, and final versions of the software completed with a market analysis. According to that, priority dissemination spots were defined. They are represented by 8 green dots in the Figure 2.

They can be correlated to the 3 stages initially defined:

- **Stage 1** (M1-M12): **Raising awareness** of project's objectives, results, benefits, use and applicability through diverse channels to all interested parties.
- **Stage 2** (M12-M30): **Promoting a deeper understanding** of new tools for a number of audiences who can benefit from what DTOceanPlus project can offer and **engaging with target groups** to facilitate adoption and usage of DTOceanPlus designed tools.
- **Stage 3** (M30-M36): **Influencing decision-making** within authorities, lobbies, policy makers regarding the uptake of DTOceanPlus tools.

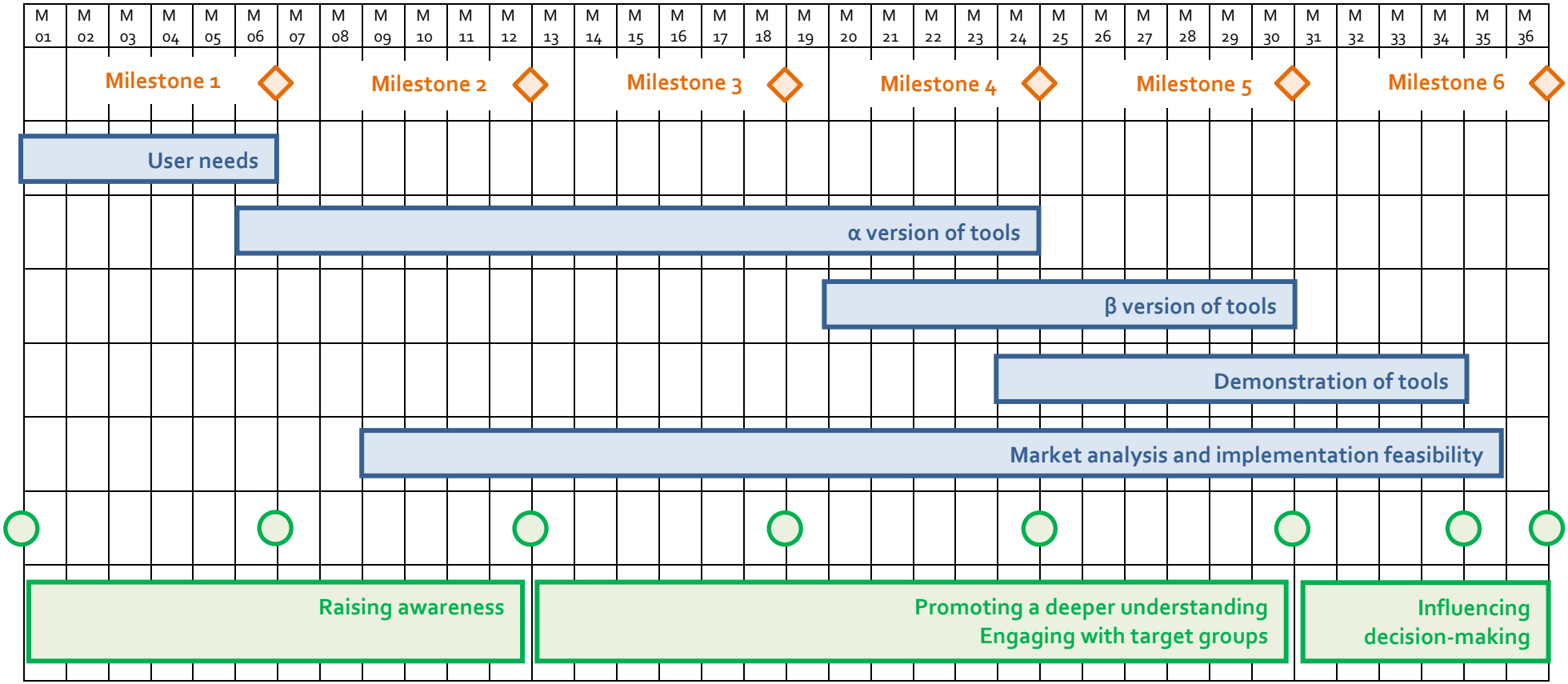


FIGURE 2. PRIORITY DISSEMINATION SPOTS (GREEN DOTS) THROUGHOUT THE PROJECT

3. DISSEMINATION MATERIALS

Four types of dissemination material have been created at the beginning of the project to meet the needs of partners during their communication actions:

- A **leaflet** in a A5 format that helps to highlight the main objective of the project and to know how to stay informed of the latest progress;
- A **brochure** which is a 4-page document in A4 format that summarises the main points about the project and allows to go further than the leaflet in the level of information;
- A **poster** and a **pull-up banner** that are very useful to communicate at fairs and conferences as they are easy to set up and provide visibility;
- A standard **presentation** which is ready to use for oral communication and meetings to present the project. The latter exists in two versions (1 slide and 8 slides) to present the project during oral communication and meetings.

All these dissemination materials are freely accessible on DTOceanPlus website and were already used during several meetings and conferences. A picture of these materials is in Annex I.

It appears to be more appropriate to create and disseminate a **didactic video** when there will be more progress (M12-M18). The scenario of this video can be considered with the following steps:

- Presenting the general context of ocean energy sector;
- Explaining how DTOcean+ tools support user's needs;
- Showing what was achieved so far;
- Asking feedback from stakeholders to go further.

4. COMMUNICATION AND DISSEMINATION ACTIVITIES

4.1 ON THE WEBSITE

4.1.1 List of activities

After agreement on architecture and content, DTOceanPlus website was developed and released on 30 July 2018. It is accessible via the URL www.dtoceanplus.eu. The website contains 6 main sections:

- **About DTOceanPlus**: description, objectives, exploitable results and history;
- **Project Structure**: objectives and description of the work performed for each work package;
- **Tools**: different versions of DTOcean tools (software, source codes, tutorials);
- **Publications**: dissemination materials, public deliverables, scientific publications, research data, training materials;
- **Partners**: short presentation of each consortium members and of the two US institutions;
- **News:** short articles and press releases giving information about events, projects main steps…

During the first year of the project, **main updates** concerned:

- Putting online all dissemination and education materials and the 13 public deliverables that were released (D2.1, D2.2, D2.3, D 1.4, D3.1, D4.1, D5.1, D6.1, D9.1, D 9.2, D9.3, D9.8 and D 9.10);
- Publishing 17 news mainly related to conference attendances and deliverable releases;
- Transferring all relevant contents from the old DTOcean website to the DTOceanPlus website in the "History" subsection of "About DTOceanPlus" section.

A **newsletter** was also set up and 35 subscribers have already registered. In November 2018 and February 2019, issues were sent after the release of new deliverables.

4.1.2 Results monitoring

Statistics on the project website are obtained using AWStats tool (Figure 3). It is a free powerful and featureful tool that generates advanced web statistics and complying with DGMP. It also allows access to real traffic excluding that related to robots. To ensure that dissemination through www.dtoceanplus.eu is efficient, 5 indicators have been defined and are monitored every month (See Table 3). Other information given by the statistics tool are very interesting, as they provide an overview of downloaded document and worldwide visibility of the project (See Table 4).

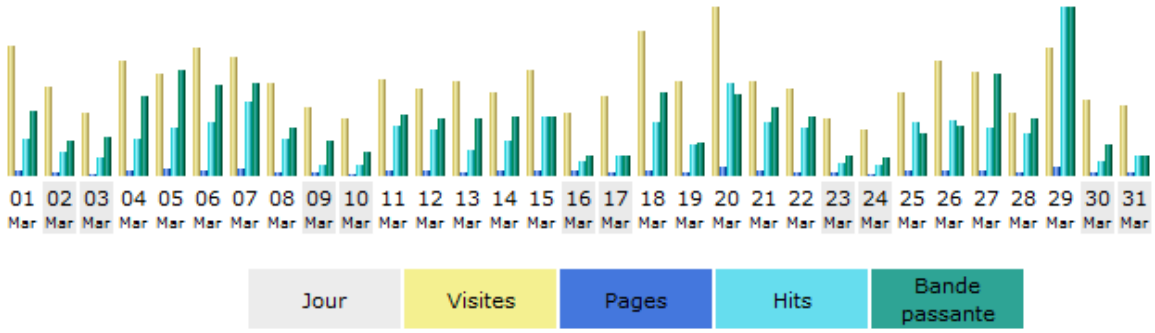


FIGURE 3. EVOLUTION OF VISITS, VIEWED PAGES, HITS AND BANDWITCH CONSUMPTION DURING MARCH 2019 GIVEN BY AWSTATS TOOL

TABLE 3. DISSEMINATION IMPACT WITH WEBSITE CHANNEL

	No. of monthly visits	Duration of visits (sec)	No. of downloaded files / month	Total no. of didactic video views	No. of references from external web pages
Objective	**300**	**120**	**20**	**5,000**	**10**
M04 - 08/18	196	451	4	NA	1
M05 - 09/18	271	380	4	NA	2
M06 - 10/18	480	134	8	NA	3
M07 - 11/18	805	149	9	NA	4
M08 - 12/18	897	135	40	NA	5
M09 - 01/19	1,405	103	41	NA	4
M10 - 02/19	1,463	125	44	NA	5
M11 - 03/19	1,706	120	44	NA	5
Average	**903**	**200**	**24**	**NA**	**4**

NA: Not yet Applicable

TABLE 4. DTOCEANPLUS COMPLEMENTARY STATISTICS FROM M04 TO M11

Top 10 countries (no. viewed pages)		Top 10 downloaded files related to DTOceanPlus (no. downloads)		Top 10 URL excluding landing pages (no. viewed pages)	
France	3,754	Deliverable D2.2	192	DTOcean Tools Version 1.0	434
United Kingdom	2,756	Deliverable D2.1	180	DTOceanPlus Description	409
United States	1,652	Deliverable D9.10	119	Enel Green Power	398
China	1,567	1 slide presentation	114	DTOceanPlus History	397
Italy	527	Deliverable D2.3	102	DTOceanPlus Objectives	232
India	498	Brochure	89	Deliverable D2.1	203
Germany	495	Deliverable D9.2	85	WP1 Project management	189
Spain	459	Full presentation	75	DTOceanPlus Exploitable results	165
Portugal	427	Poster	73	WP2 Refinement of user needs	140
Russia	377	Deliverable D9.8	69	WP4 Stage gate design tools	139

Statistics on the website show results that are generally higher than the initial objectives. The number of visitors to the website is constantly increasing. From Top 10 countries visiting the web site, we can see that visitors are coming from EU countries, but also from America (United States) and Asia (China, India). The audience is therefore global.

The duration of visits is consistent with the amount of content that can be viewed. All PDF files online on the site were downloaded in February and March 2019. Among the most downloaded are the deliverables, and more specifically the technical reports, as well as the dissemination material. The most visited pages are mainly the one with the link to DTOcean 1.0 and those explaining the project content and objective.

Having a didactic video on line and more references from external web pages will certainly help to increase and improve website statistics.

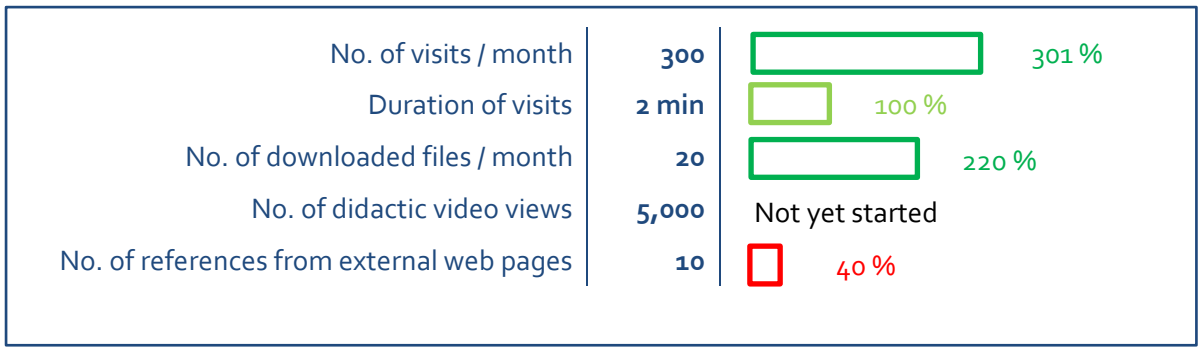


FIGURE 4. TARGET AND ACHIEVEMENT DEGREE REGARDING WEBSITE OBJECTIVES FOR THE WHOLE PROJECT PERIOD

4.2 ON SOCIAL MEDIA

4.2.1 List of activities

Regarding social media, it has been decided to use current partner profiles instead of creating bespoke ones in order to take advantage of existing community. Information about the project was mainly disseminated with **35 posts on LinkedIn and Twitter** (See Table 5). The tag widely used was **#DTOceanPlus**. A selection of posts screenshots is in Annex II.

TABLE 5. OVERVIEW OF SOCIAL MEDIA POSTS

#	Date	Media	Author	Subject	Views	Interact°
01	16 May 2018	LinkedIn	TECNALIA	Kick-off meeting	3,000	59
02	01 Jun. 2018	LinkedIn	TECNALIA	Announcement in IEA-OES bulletin	ND	21
03	01 Jun. 2018	LinkedIn	TECNALIA	Announcement of webinar #1	ND	32
04	25 Jun. 2018	LinkedIn	WAVEC	Announcement of webinar #1	619	22
05	03 Jul. 2018	LinkedIn	UEDIN	Announcement of webinar #1	385	16
06	10 Jul. 2018	LinkedIn	UEDIN	Survey for potential users	1,529	64
07	11 Jul. 2018	LinkedIn	TECNALIA	Survey for potential users	ND	31
08	25 Jul. 2018	LinkedIn	WES	Survey for potential users	226	4
09	31 Jul. 2018	LinkedIn	UEDIN	Survey for potential users	533	14
10	29 Aug. 2018	LinkedIn	TECNALIA	Announcement of D2.1 release	2,202	14
11	30 Aug. 2018	LinkedIn	FEM	Announcement of D2.1 release	225	11
12	06 Sep. 2018	LinkedIn	UEDIN	Announcement of D2.1 release	529	24
13	21 Sep. 2018	LinkedIn	FEM	Newsletter subscription	282	14
14	21 Sep. 2018	Twitter	FEM	Newsletter subscription	662	13
15	18 Oct. 2018	LinkedIn	FEM	PSC meeting and working sessions	618	98
16	18 Oct. 2018	Twitter	FEM	PSC meeting and working sessions	835	26
17	14 Nov. 2018	LinkedIn	FEM	3 new deliverables (D2.2, D9.2, D9.10)	429	16
18	14 Nov. 2018	Twitter	FEM	3 new deliverables (D2.2, D9.2, D9.10)	275	7
19	22 Nov. 2018	LinkedIn	UEDIN	3 new deliverables (D2.2, D9.2, D9.10)	246	22
20	22 Nov. 2018	LinkedIn	UEDIN	Ocean Energy Conference	197	16
21	06 Dec. 2018	Twitter	WES	WES annual conference	1,100	16
22	22 Dec. 2018	LinkedIn	UEDIN	SuperGen conference	574	232
23	15 Jan. 2019	LinkedIn	UEDIN	SuperGen conference	878	128
24	17 Jan. 2019	Twitter	FEM	Newsletter subscription	404	2
25	24 Jan. 2019	LinkedIn	UEDIN	DTOcean software demonstration	647	60
26	01 Feb. 2019	Twitter	FEM	2 new deliverables (D2.3, D9.10)	301	2
27	01 Feb. 2019	LinkedIn	FEM	2 new deliverables (D2.3, D9.10)	859	49
28	04 Feb. 2019	LinkedIn	TECNALIA	2 new deliverables (D2.3, D9.10)	ND	23
29	15 Mar. 2019	LinkedIn	FEM	DTOcean 2.0 release	548	17
30	15 Mar. 2019	Twitter	FEM	DTOcean 2.0 release	258	1
31	20 Mar. 2019	LinkedIn	TECNALIA	H2020 OE projects workshop	ND	26
32	21 Mar. 2019	LinkedIn	UEDIN	H2020 OE projects workshop	898	161
33	26 Mar. 2019	LinkedIn	UEDIN	DTOcean 2.0 release	ND	17
34	28 Mar. 2019	LinkedIn	FEM	DTOceanPlus in IEA-OES report 2018	378	16
35	28 Mar. 2019	Twitter	FEM	DTOceanPlus in IEA-OES report 2018	208	1

ND: No Data

A page about the project has also been created in **ResearchGate**, a social networking site for scientists and researchers to share publications, ask and answer questions, and find collaborators. A sheet for each of the technical public deliverables released so far was also produced.

The "Design tools for Ocean Energy Systems" **LinkedIn Group** created in the framework of DTOcean is intended to convey the experience of different members of LinkedIn in the decision-making process for the design of ocean energy systems, focusing the attention on wave and tidal technologies. This group is accessible directly from the DTOceanPlus website.

4.2.2 Results monitoring

To ensure that dissemination through social media is efficient, 4 indicators were previously defined and are regularly monitored:

- The number of **contact updates** can be assimilated to the number of **views** regarding the updates tagged with #DTOceanPlus as it corresponds to the number of members who saw the updates. The objective is 500 per month and the follow up is in Figure 5;
- The number of **visits** per post can be connected to the number of **interactions** (like, share, comment and /or click) for each topic that was treated. The objective is more than 50 per topic and the follow up is in Figure 6;
- The number of **active members** in community of users is the number of **members of the LinkedIn Group** called "Design tools for Ocean Energy Systems". The objective is 1,000 at the end of the project and it has 45 members so far;
- The number of didactic video **views on YouTube** when it will be on line. The objective is 5,000 in total with website views for the whole project period.

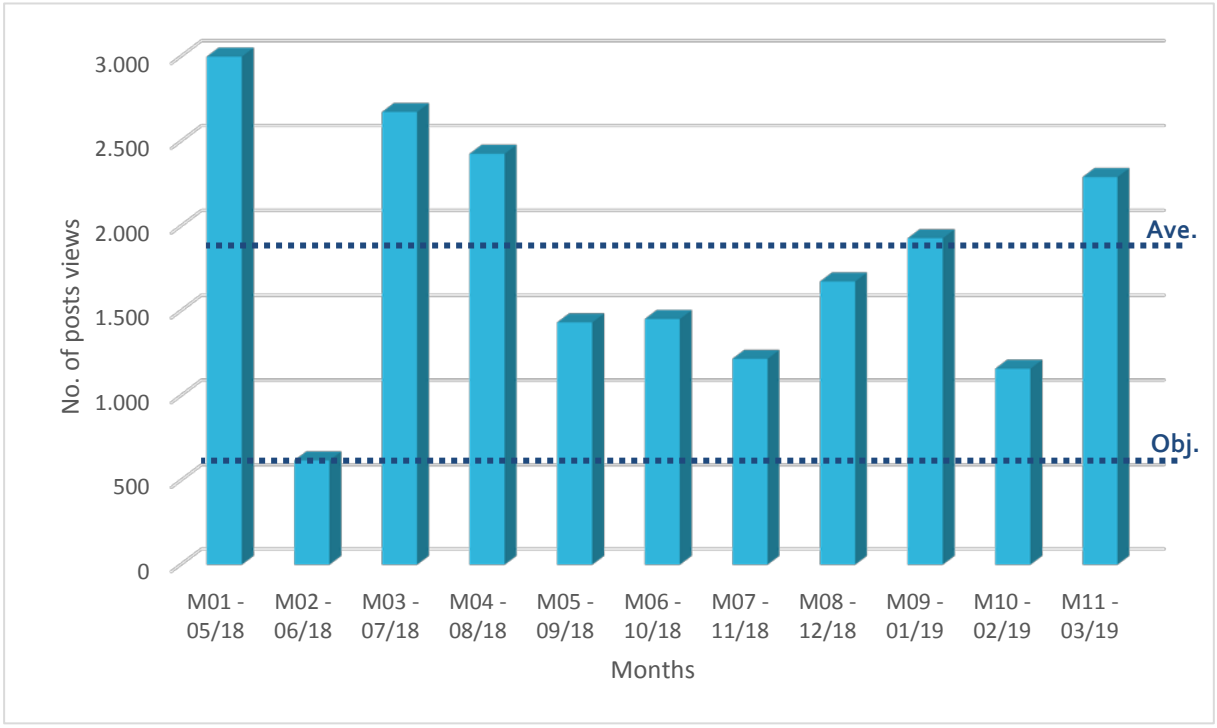


FIGURE 5. NUMBER OF CONTACTS WHO SAW DTOCEANPLUS UPDATES PER MONTH

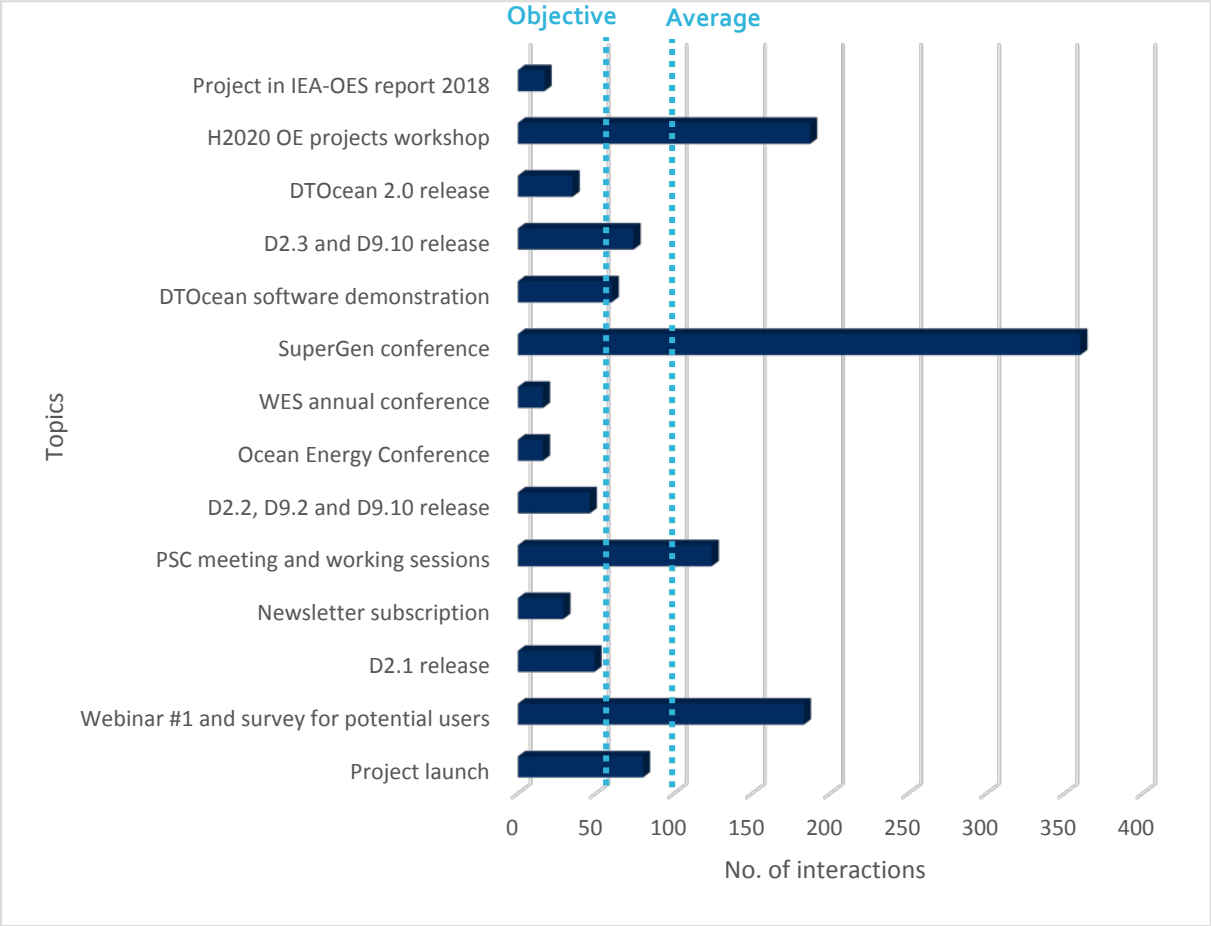


FIGURE 6. NUMBER OF INTERACTIONS PER TOPIC

Twitter and LinkedIn members who viewed project updates every month is significantly above the objective of 500. The size of this community, however, fluctuates from month to month, certainly due to an alternation between strong moments with rich news (kick-off meeting, deliverable release…) and moments when communication topics are rarer. Posts that generated most interactions are related to user's survey, meetings and workshops because they have a high potential in terms of image feedback to the followers. The involvement of partners in the publication and sharing of posts is a strong point of dissemination activities.

It seems important to continue to use two types of social media, as it gives the possibility to target different groups: potential tools users and stakeholders with LinkedIn and general public with Twitter. Completing the approach with ResearchGate seems relevant as this media is more dedicated to academic researchers. However, additional effort is needed on ResearchGate to develop the audience for DTOceanPlus as to date, statistics indicate 5 followers and 26 reads.

A strategy is under construction to extend the audience of "Design tools for Ocean Energy Systems" LinkedIn Group which is very low regarding the objective of 1,000 members at the end of the project. Some actions are already being explored like:

- Inviting new members through LinkedIn;
- Promoting the group on project website, social media and during the events;
- Publishing regularly relevant news related to DTOceanPlus project;
- Sharing interesting information related to the ocean energy sector actuality;
- Having regular Q/A sessions planned like on a blog.

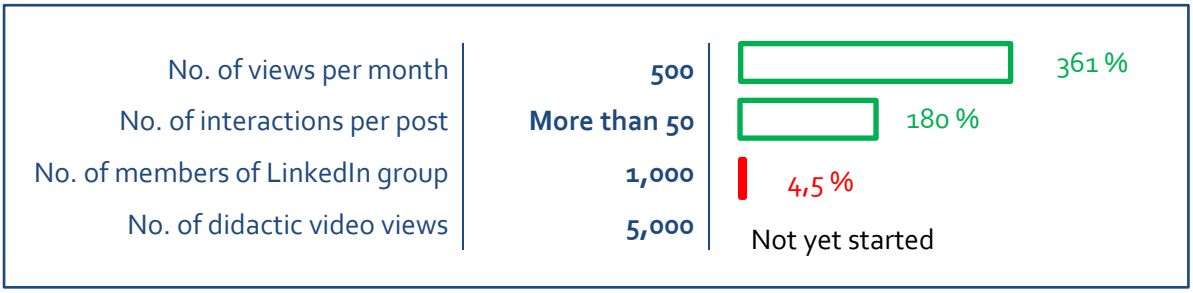


FIGURE 7. TARGET AND ACHIEVEMENT DEGREE REGARDING SOCIAL MEDIA OBJECTIVES FOR THE WHOLE PROJECT PERIOD

4.3 IN MAINSTREAM MEDIA

4.3.1 List of activities

To capture mainstream media attention and get the right messages about the project, the main tools are press releases. Two press releases have been issued to date and the full texts are in Annex III:

- **24 May 2018** - DTOceanPlus EU project will provide advanced design tools for ocean energy systems innovation, development and deployment. It was right after the kick-off meeting;
- **15 November 2018** - EU H2020 DTOceanPlus project: publication of 3 new deliverables. It was after the publication of the deliverable D2.2 containing functional requirements for 2nd generation design tools based on analysis of gaps between the current state-of-the-art tools, learning from the DTOcean project, and the stakeholder expectations identified in the user consultation.

They were disseminated on DTOceanPlus website in the 'Dissemination material' section and by e-mail to press contacts of each partner. On 15 March 2019, another press release was written in the frameworks of DTOcean 2.0 release by Data Only Greater where DTOceanPlus project has a dedicated paragraph.

4.3.2 Results monitoring

To ensure the impact of dissemination via mainstream media, 4 indicators have been defined in advance and are monitored regularly:

- Number of **press releases** written during the project with the objective of 4;
- Number of articles published in **newspapers** talking about DTOceanPlus with the objective of 4;
- Number of appearances in **TV and radio** referring to the project with the objective of 3;
- Number of articles published in **offshore renewable magazines** talking about DTOceanPlus with the objective of 6.

So far, the DTOceanPlus project has been mentioned and discussed in 8 articles which are detailed in Table 6. The full press review is in Annex IV.

TABLE 6. OVERVIEW OF PUBLISHED PARTICLES IN MAINSTREAM MEDIA

#	Date	Media	Type	Article title
1	29 May 2018	MarineEnergy.biz	Magazine (Online newsletter)	Second-gen design tools to shape up commercial ocean energy
2	31 May 2018	Energy Live News	Magazine	Scotland's wave energy body joins €8m tidal testing project
3	31 May 2018	Insider Business	Newspapers	Scottish wave industry body joins €8m European project
4	31 May 2018	ReNews.biz	Magazine (Online newsletter)	Scots log into software project
5	12 Jun. 2018	Water Briefing Global	Magazine	EU researchers develop wave and tidal power design and analysis tools
6	15 Nov. 2018	MarineEnergy.biz	Magazine	DTOceanPlus makes 3 deliveries

7	22 Feb. 2019	MarineEnergy.biz	Magazine	DTOceanPlus calls for more ideas
8	15 Mar. 2019	MarineEnergy.biz	Magazine	Data Only Greater releases new version of DTOcean

Activities related to mainstream media are carried out at the right place and seem efficient. They will intensify with the next important milestones. Press conference will be organised in order to improve the dissemination impact by increasing the number of references to the project in TV, radio, newspapers and magazines. Several media are already targeted (See Table 7).

TABLE 7. TARGETED MAINSTREAM MEDIA FOR FUTURE ACTIONS

Media	Country	Type	Involved partner
Le Marin	France	Magazine	FEM
Revista de Marinha	Portugal	Magazine	WAVEC
SETIS Magazine	EU	Magazine	WES
Ouest-France	France	Newspapers	FEM
The Guardian	United Kingdom	Newspapers	FEM/ESC

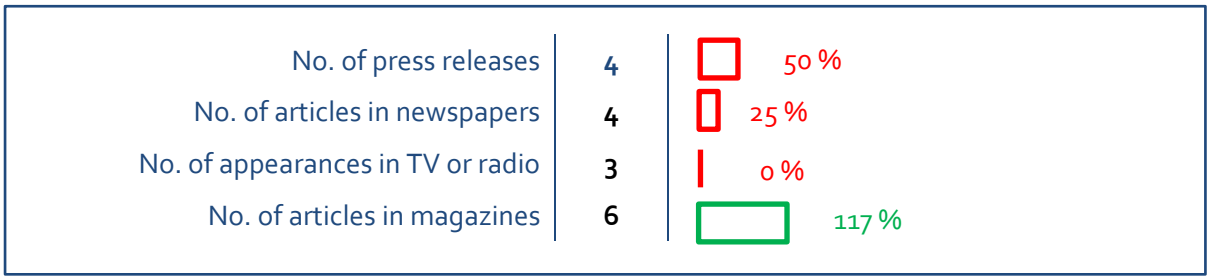


FIGURE 8. TARGET AND ACHIEVEMENT DEGREE REGARDING MAINSTREAM MEDIA OBJECTIVES FOR THE WHOLE PROJECT PERIOD

4.4 USING SCIENTIFIC & TECHNICAL PUBLISHING CHANNELS

Because the α version of the tools is still under development and this channel belongs to stages 2 and 3 (M12-M36) of communication strategy, no scientific paper was yet submitted and no data set deposit was yet completed. The objectives regarding the whole project are 6 **scientific papers** submitted and 3 **data sets** deposed in open access.

Several scientific papers are planned to be submitted before the end of the project, even if the topics still need to be refined (Table 8). Three data sets deposits will also be done according to the Data Management Plan which is Deliverable D9.10 (Table 9).

TABLE 8. PLANS ABOUT SCIENTIFIC PAPERS SO FAR

Journal	Subject	Date	Authors
Energy Reports Renewable and Sustainable Energy Reviews Renewable Energy Journal of Ocean Engineering and Marine Energy	Digital representation for ocean energy systems: a holistic approach and implementation	Jan. 2020	TECNALIA, WP7 Leader, WES
Ocean Engineering	Logistics and marine operations planning module	Jan. 2020	WAVEC
Energies Applied Ocean Research Renewable Energy Journal of Ocean Engineering and Marine Energy	Impact of environmental and social aspects on design	End 2020	FEM
Not yet determined	Potential markets, how SI can be used to identify new areas of opportunity and stage gates used to quantify these	Not yet determined	UEDIN
Not yet determined	Energy capture module or RAMS module	Not yet determined	AAU
Not yet determined	Structured innovation tool	Not yet determined	ESC

TABLE 9. PLANS ABOUT DATA SET DEPOSITS SO FAR

Data set category	Lead partner	Related WP
Components	TECNALIA	WP5
Assessments	WES	WP4, WP6
Vessels, equipment and ports	WAVEC	WP5

4.5 DURING EVENTS

4.5.1 List of activities

Project partners presented DTOceanPlus through oral communications during 9 workshops, symposiums, seminars, meetings or even courses. The project was also highlighted at exhibition part of Ocean Energy Europe 2018 in October. The detail of activities carried out are in Table 10.

TABLE 10. OVERVIEW OF EVENTS AT WHICH THE PROJECT WAS PRESENTED

#	Date	Event	Action type	Title and contributors
1	12/06/2018	ICOE Cherbourg, France	Oral com°	Metrics: Showing What We Can Do WES, Jillian Henderson
2	14-15/06/2018	34th Executive Committee Meeting of IEA-OES Cherbourg, France	Oral com°	TECNALIA
3	16/10/2018	Ocean Energy Conference: the impact of EU R&D Brussels, Belgium	Oral com°	DTOcean and DTOceanPlus UEDIN, Simon Robertson
4	22-27/10/2018	INORE EU Symposium Aviemore, UK	Oral com°	Collaborative Task: TRIZ for Alternative Generation WES, Jillian Henderson
5	30-31/10/2018	Ocean Energy Europe Edinburgh, UK	Fair	TECNALIA
6	05/12/2018	Supergen UKCMER Annual Assembly Edinburgh, UK	Oral com°	DTOcean and DTOceanPlus UEDIN, Donald Noble
7	06/12/2018	WES Annual Conference Edinburgh, UK	Oral com°	DTOceanPlus, an ambitious EU project to accelerate the commercialization in the ocean energy sector WES, Jonathan Hodges
8	29-30/11/2018	35th Executive Committee Meeting of IEA-OES Las Palmas, Spain	Oral com°	TECNALIA, Yago Torre-Enciso
9	19/12/2018	2h-training course to a Master audience about MRE farm design Marseille, France	Oral com°	Design tools for commercial MRE farms FEM, Nicolas Germain
10	14/03/2019	3rd Clustering Meeting on H2020 Ocean Energy Projects Brussels, Belgium	Oral com°	DTOceanPlus, an ambitious EU project to accelerate the commercialization in the ocean energy sector UEDIN, Henry Jeffrey TECNALIA, Pablo Ruiz-Minguela

DTOceanPlus leaflets were also disseminated during: FEM S&T Tribune in Brest (France) on 26 November 2018 and WAVEC Annual Seminar in Lisbon (Portugal) on 4 December 2018. In total, around 230 copies were distributed.

4.5.2 Results monitoring

Four indicators were initially defined to assess the impact of dissemination activities related to events:

- Number of attended **conferences** with presentation or poster with the objective of 6;
- Number of **oral communications** at congresses, seminars or meetings with the objective of 12;
- Number of attended **industrial events or fairs** with the objective of 6;
- Number of **leaflets distributed** at events with the objective of 1,000.

The number of oral communications made and flyers distributed is significant and close to the overall objectives of the project. As far as attendance at trade fairs and conferences is concerned, it seems more appropriate to focus on events to be held at the end of 2019 and in 2020. Several actions are already planned (See Table 11).

TABLE 11. TARGETED EVENTS FOR FUTURE ACTIONS

Date	Event	Action type	Contributor
15-16 May 2019	All-Energy 2019 Glasgow, UK	Oral com°	WES
01-06 Sept. 2019	EWTEC 2019 Napoli, Italy	Conference	TECNALIA
Dec. 2019	WAVEC Annual Seminar Portugal	Oral com°	WAVEC
Dec. 2019	FEM S&T Tribune Paris, France	Oral com°	FEM
2020	ICOE 2020 Washington, USA	Conference	WAVEC
Oct. 2020	Sea Tech Week Brest, France	Oral com°	FEM
Oct. 2020	OEE 2020 Place not yet determined	Conference Fair	FEM

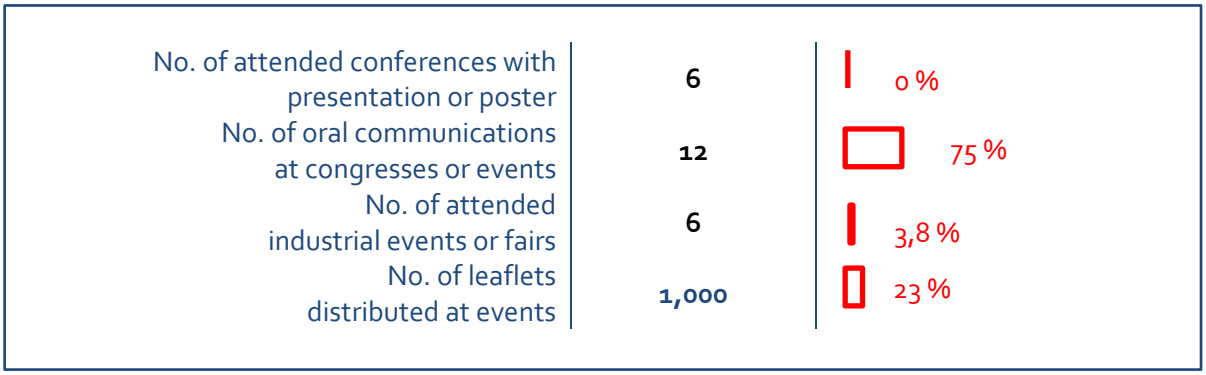


FIGURE 9. TARGET AND ACHIEVEMENT DEGREE REGARDING S&T EVENTS OBJECTIVES FOR THE WHOLE PROJECT PERIOD

5. EDUCATION AND TRAINING ACTIVITIES

5.1 LIST OF ACTIVITIES

On 6 July 2018, the webinar #1 entitled "DTOceanPlus used needs consultation - Introductory webinar" was organized to inform potential users of tools about planned developments in the framework of DTOceanPlus. The objectives and the structure of the project were explained and the tools of the suite were detailed. At the end, the participants were invited to answer an online questionnaire to assist in identifying the needs of future users. Some slides presented during the webinar are in Annex V.

The webinar #1 is available for consultation on DTOceanPlus website:
www.dtoceanplus.eu/Publications/Training/DTOceanPlus-materials/Webinar-1

35 people participated to the webinar on the day and 94 watched it from July 2018 to March 2019 on the website. That means 129 people attended this webinar.

5.2 RESULTS MONITORING

Because the α version of the tools is still under development and education & training activities belongs to stages 2 and 3 (M12-M36) of communication strategy, very few actions could be carried out. All activities planned in this framework are described in the Education and training plan which is the Deliverable D9.8.

No. of organized webinars	3	33 %
No. of participants in each webinar	100	129 %
No. of organized technical workshops	2	Not yet started
No. of attendees per workshop	50	Not yet started
No. of physical training sessions	4	Not yet started
No. of training sessions including visits	2	Not yet started
No. of participants in each session	30	Not yet started

FIGURE 10. TARGET AND ACHIEVEMENT DEGREE REGARDING EDUCATION AND TRAINING ACTIVITIES FOR THE WHOLE PROJECT PERIOD

6. CONCLUSIONS

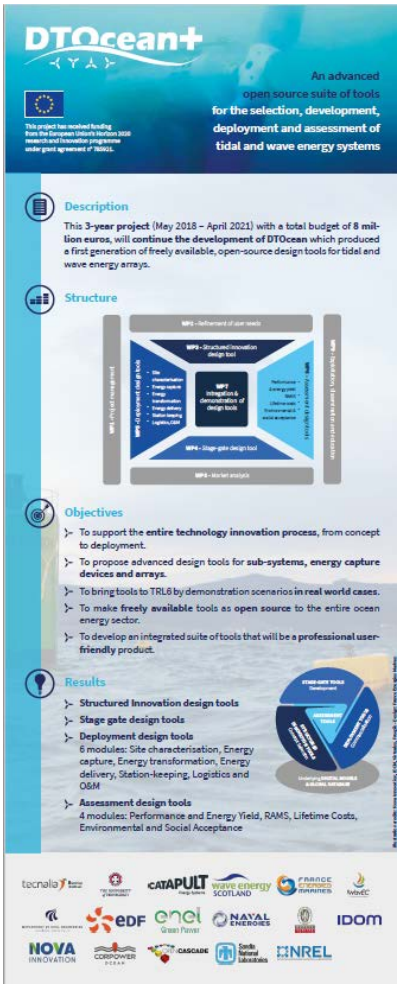
The effectiveness of dissemination and training actions was evaluated each month using indicators that were defined upstream. This allows for close monitoring and corrective action to be taken if necessary.

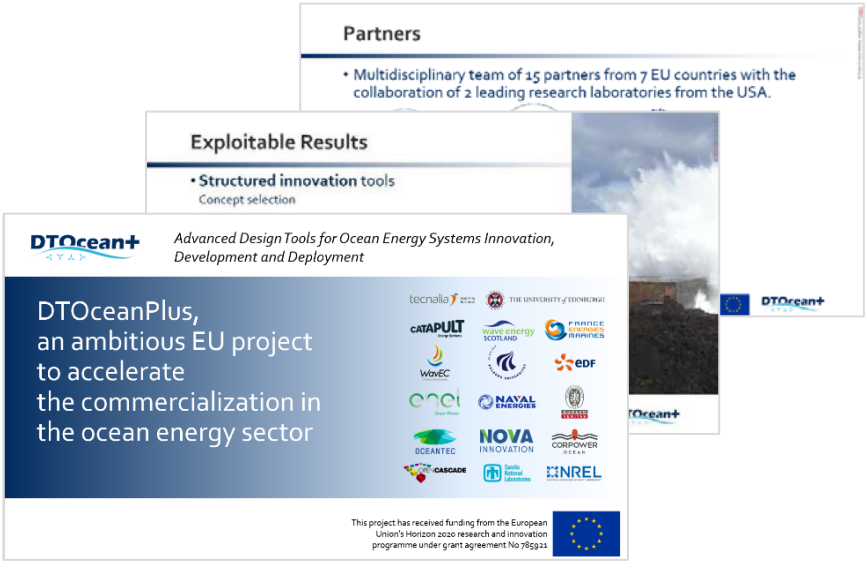
During this first year of project, actions were exclusively dedicated to raising awareness of DTOceanPlus' objectives, results, benefits, use and applicability through diverse channels to all interested parties.

Project website appears as the main channel for information dissemination, but social media are proving to be valuable assets in generating traffic on the dtoceanplus.eu. Mainstream media are a good way to reach the general public. Press conferences should help in improving impacts. DTOceanPlus was presented in several meetings, workshops and conferences at regional and international levels. The promotion of the project through events will be intensified during second year of DTOceanPlus thanks to communication on the first achievements.

Because the α version of the tools is still under development, all actions regarding scientific papers submission, data set deposits and training activities are planned or in preparation. Most of them will be implemented in 2020.

ANNEX I: DTOCEANPLUS LEAFLET, BROCHURE, PULL-UP BANNER AND PRESENTATION





ANNEX II: SELECTION OF SOCIAL MEDIA POSTS

TECNALIA Offshore Renewable Energy • 1st
TECNALIA Offshore Renewable Energy Team
5mo

#DTOCEANPLUS: Representatives of the 15 partners met in Derio, near Bilbao (Spain) to launch the project from 14 to 16 May at the kick-off meeting (KoM) organized by TECNALIA Research & Innovation, the project coordin ...see more

Policy and Innovation Group
145 followers
7mo

Want to contribute to the #oceanenergy sector?

You are welcome to complete our survey and help us to better understand user needs for #DTOceanPlus an open source Optimization Tool for Ocean Energy Arrays.

#DTOceanPlus is a European Commission project led by TECNALIA Offshore Renewable Energy.

https://lnkd.in/gbJ6ZxP

France Energies Marines @FrceEnergiesMar · 18 oct. 2018
End of 2 days of very productive working sessions for #dtoceanplus project partners in @EDFofficiel's premises on Paris-Saclay Campus. The ultimate objective: a suite of tools for selection, development, deployment and assessment of #ocean #energy systems. dtoceanplus.eu
Traduire le Tweet

Wave Energy Scotland @WaveEnergyScot · 6 déc. 2018
Jonathan Hodges providing an update to the delegates at the #wesanconf18 on the #dtoceanplus project in which WES is a partner
Traduire le Tweet

France Énergies Marines
408 followers
now

#DTOceanPlus H2020 EU project partners have just released 2 new deliverables.

The first one is a report that describes the methodology used to define the "validation scenarios", accounting for the different potential use cases > D2.3 - Demonstration methodology

The second one describes the education and training strategy > D9.8 - Education and training plan

Keep in touch with #DTOceanPlus project at https://www.dtoceanplus.eu.

Policy and Innovation Group
177 followers
4d • Edited

3rd Clustering Meeting on H2020 Ocean Energy Projects

Last week, Henry Jeffrey attended the 3rd meeting on #H2020 #OceanEnergy projects in Brussels at INEA - Innovation and Networks Executive Agency. The meeting had the objective to share project concepts, initial results, progress, challenges and discuss potential synergies for possible further joint activities.

Policy and Innovation Group is partner in six of the H2020 ocean energy projects discussed: #DTOceanPlus, #ENFAIT, #OPERAH2020, #TIPA, #WaveBoost and IMAGINE - H2020 project.

ANNEX III: DISSEMINATED PRESS RELEASES

Press release - 24 May 2018 - Marine renewable energies

DTOcean+ EU project will provide advanced design tools for ocean energy systems innovation, development and deployment

An ambitious new EU project has been set up to accelerate the commercialisation of the ocean energy sector

DTOcean+ is funded by Horizon 2020, the EU's research and innovation programme. It will accelerate the commercialisation of the ocean energy sector by developing and demonstrating an open source suite of design tools for the selection, development, deployment and assessment of ocean energy systems (including sub-systems, energy capture devices and arrays). This 3-year project (1 May 2018 – 30 April 2021) has a total budget of 8 million euros.

The DTOcean+ consortium has been formed to bring together representatives of all key user and stakeholder groups and developers of Europe's leading ocean energy sub-systems, devices and arrays. Representatives of the 15 partners met in Derio, near Bilbao (Spain) to launch the project from 14 to 16 May 2018 at the kick-off meeting (KoM) organized by Tecnalia, the project leader. Mr. Paolo Tacconi, project officer from the Innovation & Network Executive Agency (European Commission) actively participated. It is also worth mentioning that international collaboration is developed to avoid duplication, ensure replication and gain global acceptability of the design tools. Representatives of two US institutions, Sandia National Laboratory and National Renewable Energy Laboratory, participated to the KoM.

The first day of the KoM was presented a global overview of the project and contractual aspects. The second day, the consortium went through the technical work packages and had three technical sessions. A technical visit to the BiMEP open-sea wave energy test facility was organized the last day to learn first-hand of the technical developments and design challenges of one of the partners, Oceantec.

An integrated set of tools to support the entire technology innovation process of ocean energy systems

Technologies which harness ocean energy are not yet mature enough for widespread use. At present they all possess performance, reliability and survivability challenges, which lead to high costs of energy in comparison with other energy sources. Such challenges can be overcome with the correct tools and processes to support market growth and technology innovation.

DTOcean+ will develop and demonstrate a suite of 2nd generation advanced design tools for the selection, development and deployment of ocean energy systems, aligning innovation and development processes with those used in mature engineering sectors:

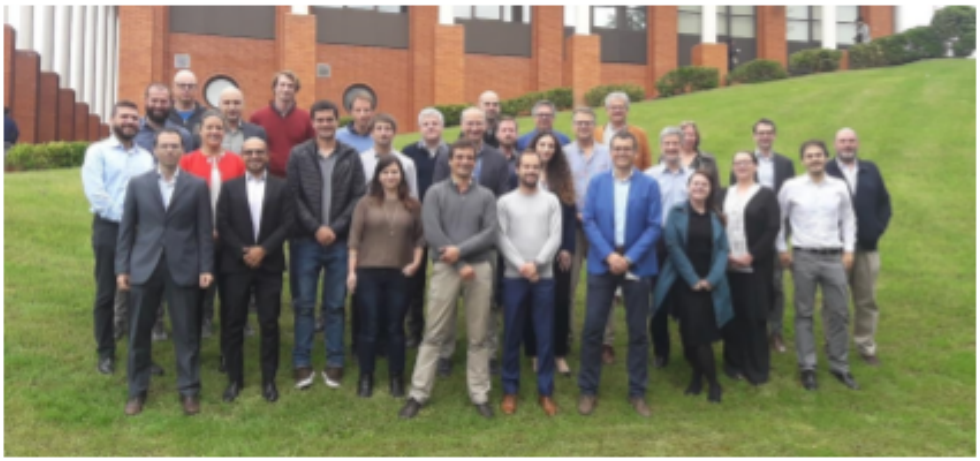
- Technology concept selection will be facilitated by a structured innovation design tools,

- Technology development will be enabled by a stage-gate design tool,
- Deployment optimization will be implemented by deployment and assessment design tools.

The integrated tools will be demonstrated in the setting of real world technology deployment projects, with access to these projects being provided by the project's industrial and commercial partners. The project will create a set of digital models which will also provide a common language for the entire ocean energy sector.

Reducing technological and financial risks and improving cost effectiveness of ocean energy technologies

Users of the DTOcean+ suite of tools will be able to generate designs for innovative ocean energy technologies and deployments. These designs will be optimised for a wide variety of key metrics including lifetime costs, reliability, availability, maintainability, survivability, performance, environmental impact and socio-economic impact. Designs generated using DTOcean+ will also balance technological and financial risk which, in combination with greatly improved cost effectiveness, ensure that ocean energy technologies become significantly more commercially attractive. Within 5 years of completing the project it's expected that the results will contribute to achieving a significant increase in the number of ocean energy technologies successfully brought to market, improvement in performance uncertainty contributing to achieving up to 6% and 8% reduction in Levelized Cost of Energy (LCoE) for wave and tidal respectively, significant reduction in operating and maintenance (O&M) costs and reductions in installation costs.



DTOcean+ Press Release - 15 November 2018 - Marine Renewable Energy

EU H2020 DTOceanPlus project: publication of 3 new deliverables

The first six months of DTOceanPlus were rich in discussions, exchanges and consultations with stakeholders of the marine energy sector. It should be recalled that this EU H2020 project aims to develop and test a suite of advanced design tools for tidal and wave systems, based on the work already carried out within the framework of the EU FP7 DTOcean project. Three new deliverables have just been posted on the project's dedicated website: dtoceanplus.eu.

Functional requirements in line with the needs of the field

The functional requirements of the 2nd generation design tool suite have been built taking into account the expectations of potential users, identified during a consultation phase, and the functionalities not covered by the various tools available on the market. The feedback from the DTOcean project has also proved very valuable in producing a document that combines technicality, precision and pragmatism.

A suite of 4 design tools to support the entire technology innovation process

DTOcean 2nd generation suite will comprise 4 design tools called 'Structured Innovation', 'Stage Gate', 'Deployment' and 'Assessment'. It will be applicable to three different technology levels of the farm system, specifically: sub-system, device and array. This suite will be designed to support users with differing requirements in terms of detail; from investors wishing for a high-level overview of a technology or project, to developers performing detailed technical assessments.

Structured Innovation design tools' requirements

The **Structured Innovation** design tools are part of the significant additions to the original DTOcean software. They will be used to assist the stakeholders in creating and generating new concepts of innovations worth for further development. In combination with other DTOcean tools, they can be used at all the stages of the project lifecycle to assess potential concepts from low to high TRL levels for devices, sub-systems and arrays. The ability to self-learn to use the tool, to spend as little time as possible inputting the data in the Structured Innovation design tools and the flexibility to import or export data to other software are some of the requirements from the stakeholders.

Stage Gate design tools' requirements

The **Stage Gate** design tools are the other part of the significant additions to the original DTOcean software. They will be used to aid decision-making by evaluating what stage in technology development a technology is currently at, and the distance and further actions needed to reach the next stage. They will need to work very closely with the Structured Innovation, Deployment and Assessment tools in the assessment of technologies. The ability to assess technologies at both low and high TRL levels for sub-systems, devices and arrays is key to its functionality and reinforces the links between all the tools. Flexibility of how the tool is used was one of the key outputs of the user requirements study.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 785921

Deployment design tools' requirements

The **Deployment** design tools will be used to support optimal device and array deployment. They will improve and expand on the capabilities of the original DTOcean software to consider the main functionalities of ocean energy technologies and systems, split into 6 modules:

- The **Site Characterization** module will have to provide the characterization of the environmental conditions at the farm's deployment site, by processing raw input data (bathymetry, wave regime, sea water level) and outputting processed data (current, wave statistics) to other tools of the suite and for user visualization.
- The **Energy Capture** module should allow the identification of the layout producing the maximum energy yield from an array of either tidal or wave energy converters.
- The **Energy Transformation** module should make it possible to assess and optimize the Power Take-Off (PTO) technologies and associated control strategies at varying levels of complexity throughout the project lifecycle.
- The **Energy Delivery** module will allow to design and assemble optimal solutions for the electrical infrastructure for a given sub-system, device, array and site.
- The **Station Keeping** module should allow to design the station keeping system and support the decision-making process by providing validated design options for the station keeping systems.
- The **Logistics and Marine Operations** module will provide decision support to the user in the design and planning of all lifecycle operations related with offshore ocean energy systems.

Assessment design tools' requirements

The **Assessment** design tools will provide a dual role: firstly, to provide objective information to the developer or investor on the suitability of a technology and project (in link with the Stage Gate tools); and secondly to support the other tools of the suite. They will improve and expand on the capabilities of the original DTOcean software, split into 4 modules:

- The **System Performance and Energy Yield** module will provide information about the system performance and energy yield in order to evaluate and compare different sub-systems, device or array.
- The **Reliability, Availability, Maintainability and Survivability (RAMS)** module will give an estimation of the reliability, availability, survivability and maintainability of sub-systems, devices or arrays of ocean energy technologies.
- The **System Lifetime Costs** module will provide a detailed assessment of the lifetime costs of a system or project, revealing its economic and financial viability.
- The **Environmental and Social Acceptance** module will provide environmental and social impact assessment to the user during all lifecycle operations related with offshore ocean energy systems.

Open science: a strong commitment

DTOceanPlus partners believe strongly in the concepts of open science. The project through the H2020 programme is part of the initiative launched by the European Commission concerning free access to scientific publications and research data. The open source license under which the suite of tools will be distributed will provide free access to all interested parties. As the people potentially interested in DTOceanPlus have very varied profiles, the

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 785921

communication and dissemination activities will have to reach targets as different as design offices, project leaders, standardization bodies, research institutes or students.

Contact: France Energies Marines - contact@ite-fem.org - +33 (0)2 98 49 98 69

DOWNLOAD ON DTOCEANPLUS.EU

Deliverable D2.2 "Functional requirements and metrics of 2nd generation design tools"
Deliverable D9.2 "Dissemination and Communication Plan"
Deliverable D9.10 "Data Management Plan - First version"

DTOceanPlus in short

Subject: development and testing of a suite of digital tools for the design of tidal and wave systems
Duration: 3 years (May 2018 to April 2021)
Budget: €8 million
Funding: EU Research and Innovation Programme H2020 (Grant Agreement No 785921)

Consortium members:

International partners:

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 785921

ANNEX IV: PRESS REVIEW FROM MAY 2018 TO MARCH 2019

MarineEnergy.biz - 29 May 2018

Second-gen design tools to shape up commercial ocean energy

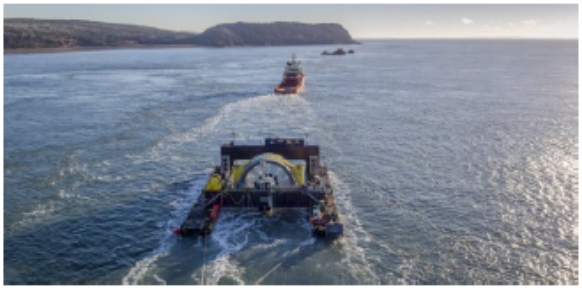


Illustration (Photo: Naval Energies)

An ambitious new project dubbed DTOceanPlus, whose aim is to accelerate the commercialization of marine energy sector by developing an open source suite of design tools for ocean energy systems, has been set up with the EU blessing.

DTOceanPlus will develop and demonstrate a suite of second generation advanced design tools for the selection, development and deployment of ocean energy systems, including sub-systems, energy capture devices and arrays.

The three-year project, set to last until the end of April 2021 with the budget of €8 million, will align ocean energy innovation and development processes with those used in mature engineering sectors, according to project coordinator Tecnalia.

The integrated tools to be developed in the project will be demonstrated in the setting of real world technology deployment projects, with access to these projects being provided by the project's industrial and commercial partners.

The project will create a set of digital models which will also provide a common language for the entire ocean energy sector, Tecnalia said.

Aside from Tecnalia, the DTOceanPlus consortium – formed to bring together representatives of all key user and stakeholder groups and developers of Europe's ocean energy sub-systems, devices and arrays – also includes University of Edinburgh, Energy Systems Catapult, Nova Innovation, Naval Energies, Wave Energy Scotland, with international partners Sandia National Laboratories and National Renewable Energy Laboratory, among others.

The international collaboration is being developed to avoid duplication, ensure replication and gain global acceptability of the design tools, Tecnalia noted.

Reducing technological and financial risks and improving cost effectiveness of ocean energy technologies

Users of the DTOceanPlus suite of tools will be able to generate optimized designs for innovative ocean energy technologies and deployments.

The designs will be optimized for a wide variety of key metrics including lifetime costs, reliability, availability, maintainability, survivability, performance, environmental impact and socio-economic impact, according to Tecnalia.

Designs generated using DTOceanPlus will also balance technological and financial risk which, in combination with greatly improved cost effectiveness, ensure that ocean energy technologies become significantly more commercially attractive, Tecnalia said.

Within 5 years of completing the project, it is expected that the results will contribute to achieving a significant increase in the number of ocean energy technologies successfully brought to market, improvement in performance uncertainty that will contribute to achieving up to 6% and 8% reduction in Levelized Cost of Energy (LCoE) for wave and tidal respectively.

Also expected are significant reductions in installation, as well as operating and maintenance (O&M) costs.

Energy Live News - 31 May 2018

Energy Live News

NEWS EVENTS VIDEOS INDUSTRY NEWS JOBS SEARCH

Infrastructure, Technology

Scotland's wave energy body joins €8m tidal testing project

DTOcean+ is an initiative to develop software to help technology companies trial wave and tidal energy concepts

Wave Energy Scotland (WES) has joined an €8 million (£7m) EU-funded project to optimise the efficiency and effectiveness of wave and tidal energy systems.

Scotland's wave energy body will work as part of the DTOcean+ project to develop a user-friendly and freely available software package to help technology companies test their concepts at an early stage.

It hopes to improve the reliability, performance and endurance of ocean energy systems, making the sector more attractive for private investment and help it become more cost-competitive.

Tim Hurst, WES Managing Director, said: "Becoming a partner in this major initiative takes our work to a whole new level.

"Those involved with ocean energy technology across Europe are working together to share best practice. Our role is to secure additional benefits for Scotland's wave energy sector."

The DTOcean+ partnership started in May this year and will run until April 2021.

Insider Business – 31 May 2018

Scottish wave industry body joins €8m European project

Wave Energy Scotland will help develop software to accelerate progress of the sector

SHARE

By **Perry Gourley**
11:08, 31 MAY 2018

The project has been set up to create open source software to help improve the reliability, performance and endurance of **ocean energy systems**, making the sector more attractive for private investment.

WES, backed by the **Scottish Government**, will provide insight from its technology development programme which has awarded 77 projects a total of £28.2m since 2014.

Tim Hurst, WES managing director, said: "Becoming a partner in this major initiative takes our work to a whole new level. Those involved with ocean energy technology across Europe are working together to share best practise. Our role is to secure additional benefits for Scotland's wave energy sector."

WES is already working with US partners **Sandia National Laboratories** and the **National Renewable Energy Laboratory** on developing common metrics for evaluating wave energy devices.

ReNews.biz – 31 May 2018

reNEWS.BIZ

Wave Energy Scotland (WES) has become a partner in the €8m EU-funded DTOcean+ project that aims to create advanced open source software to optimise marine devices.

Highlands and Islands Enterprise-owned WES will lead the stage-gate design section of the project having operated a similar system for its project calls.

()

The organisation said the output of DTOcean+ will be a freely available software package to support technology companies in testing wave and tidal concepts at an early stage.

The DTOcean+ partnership started this month and will run until April 2021 managed by Tecnalia in Spain.

The project brings together 15 partners from eight countries: UK, Spain, France, Italy, Sweden, Portugal, USA and Denmark.

WES director Tim Hurst said: "Becoming a partner in this major initiative takes our work to a whole new level. Those involved with ocean energy technology across Europe are working together to share best practice."

Water Briefing Global EU – 12 June 2018

EU researchers develop wave and tidal power design and analysis tools

By **Editorial** • June 12, 2018

EU-funded researchers have developed new tools for designing and analysing the economic reliability and environmental performance of wave and tidal-energy power farms.

These are currently being implemented and validated in real-life situations, while the DTOCEAN consortium has secured further EU funding.

The completed suite of tools developed by the EU-funded DTOCEAN project focuses on five modules that are crucial to efficient and sustainable marine energy farming: hydrodynamic electricals, moorings and foundations, installation, and operations and maintenance.

Each of the modules provides complete information about the optimal location of various devices for a given site and resource. The tools are helping ocean energy developers to ma informed decisions by updating them on possible scenarios, direct to their own computer o smart device.

Project coordinator Henry Jeffrey from the University of Edinburgh in the United Kingdom commented:

"The DTOCEAN project achieved its goal of creating a complete suite of tools for optimising marine energy."

"These are currently being used in different European projects, which aim to reduce energy costs by improving the location of arrays."

For example, tidal-energy developers Atlantis Resources and Nova Innovation are currently

validating the tools through the CLEARWATER project in the Pentland Firth off the coast of Scotland and the EU-funded ENFAIT project in the Shetland's Bluemull Sound. The ENFAIT project (Enabling Future Arrays in Tidal) is using DTOCEAN tools to identify the optimal location of turbines and to ensure efficient operations. "The use of the DTOCEAN tools in some of the largest tidal projects in the world is a success in itself," added Jeffrey.

Second wave of tools

The next step will be to ensure that the results achieved in DTOCEAN are promoted and become fully accessible.

"The Commission also recently awarded further funding for the DTOCEANPLUS project. In addition to several key partners from the original DTOCEAN project, some important industrial developers are now working in the consortium. A total of seven EU countries are involved in the project.

The project will accelerate the development of the ocean energy sector by developing and demonstrating a suite of second-generation advanced design tools for the selection, development and deployment of ocean energy systems. The tools will specifically aim to reduce the technical and financial risks of devices and arrays to achieve cost-effective deployment. The integrated tools will again be demonstrated in real-life situations.

"Wave and tidal power is still at a nascent stage, but we are quickly moving from the development into the deployment phase," Jeffrey concluded.

Editorial
https://www.waterbriefingglobal.org

MarineEnergy.biz - 15 November 2018

DTOceanPlus makes 3 deliveries


Illustration (Image: DTOceanPlus)

The EU-funded DTOceanPlus project has in the first six months since its launch produced three deliverables that have been openly shared with the marine energy sector.

The aim of the **DTOceanPlus** project is to develop and demonstrate a suite of second generation advanced design tools for the selection, development and deployment of ocean energy systems, including sub-systems, energy capture devices and arrays.

Launched in May 2018, the first six months of the DTOceanPlus were rich in discussions, exchanges and consultations with stakeholders of the marine energy sector, the project partners informed.

Three new documents produced in the project have been released to the public, including the one listing **functional requirements of the 2nd generation design tool suite** that will be developed in DTOceanPlus project.

The requirements have been created taking into account the expectations of potential users, identified during a consultation phase, and the functionalities not covered by the various tools available on the market.

The feedback from the already completed DTOcean project has also proved valuable in producing a document that combines technicality, precision and pragmatism, according to the developers.

A suite of 4 tools to support the full technology design process

DTOcean 2nd generation suite will comprise 4 design tools called 'Structured Innovation', 'Stage Gate', 'Deployment' and 'Assessment'.

It will be applicable to three different technology levels of the ocean energy farm system – specifically sub-system, device and array technologies.

This suite will be designed to support users with differing requirements in terms of detail – from investors wishing for a high-level overview of a technology or project, to developers performing detailed technical assessments, according to DTOcean project partners.

DTOceanPlus, through the H2020 program, is part of the initiative launched by the European Commission concerning free access to scientific publications and research data.

The open source license under which the suite of tools will be distributed will provide free access to all interested parties, the project partners said.

With the budget of €8 million, the project will last until April 2021, and includes European companies with international partners from the United States.

MarineEnergy.biz - 22 February 2019

DTOceanPlus Calls for More Ideas

DTOceanPlus H2020 Project is looking to develop and demonstrate a suite of 2nd generation advanced design tools for the selection, development and deployment of ocean energy systems, aligning innovation and development processes with those used in mature engineering sectors.

The FP7 funded DTOcean project produced a first generation of freely available, open-source design tools for wave and tidal energy arrays. These tools have been used on leading tidal and wave energy projects.

The integrated tools will include the Logistics and Marine Operation Planning tools, which will be developed for designing logistics solutions, that meet the project requirements and optimize logistical costs associated with logistical infrastructure selection and operation scheduling. These tools will be demonstrated with real world technology deployment projects, providing support to relevant decision makers and stimulating the offshore renewable energy sector growth.

Development and validation of logistic tools for offshore operations planning of marine renewable energy systems projects.

The purpose of master thesis is to develop and validate a cost modelling tool for marine operations, contributing to the development of a decision support tool for marine operation planning:

1. Literature review of offshore marine operation requirements and weather window analysis;
2. Develop a cost-modelling tool to calculate port and vessel hiring costs for offshore renewable energy projects;
3. Develop a tool for maintenance operation planning, taking into consideration component reliability requirements;
4. Results validation with real data, namely from offshore wind projects.

During the development of this thesis it is expected that the candidate will submit a paper on a peer review journal.

The project is supervised by Prof. Rui Castro and co-supervised by Eng. Francisco Correia da Fonseca (WavEC)

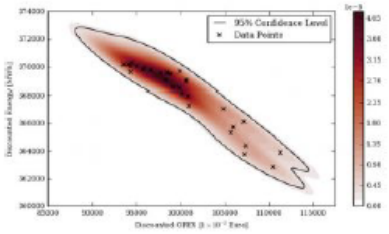
The candidate should have a background in Engineering, capable of programming in Python and know-how in offshore operations for marine renewable energy.

Candidates should submit their applications by email to mail@wavec.org until 28th February, addressed to Francisco Correia da Fonseca and include "Master Thesis application" in the subject line.

MarineEnergy.biz - 26 March 2019

MarineEnergy.biz

Data Only Greater Releases New Version of DTOcean



Irish consultancy Data Only Greater has delivered the second version of the wave and tidal energy arrays design tool DTOcean.

DTOcean 2.0 is the product of 18 months of development by Data Only Greater while partnering with Sandia National Laboratories, a Department of Energy, National Nuclear Security Administration laboratory based in the United States.

Following the release in January 2017 of the first version of the tool which was the ultimate deliverable of the DTOcean FP7 EU 3-year project gathering 19 international partners, Sandia has been helping to identify bugs in the software and evaluate its effectiveness by comparing the output to wave and tidal energy reference models.

The new version fixes several problems identified with the original release, offering full levelized cost of energy (LCoE) calculation.

DTOcean 2.0 also adds functionality to help developers quantify risk to profitability resulting from the environmental conditions faced by ocean energy technologies.

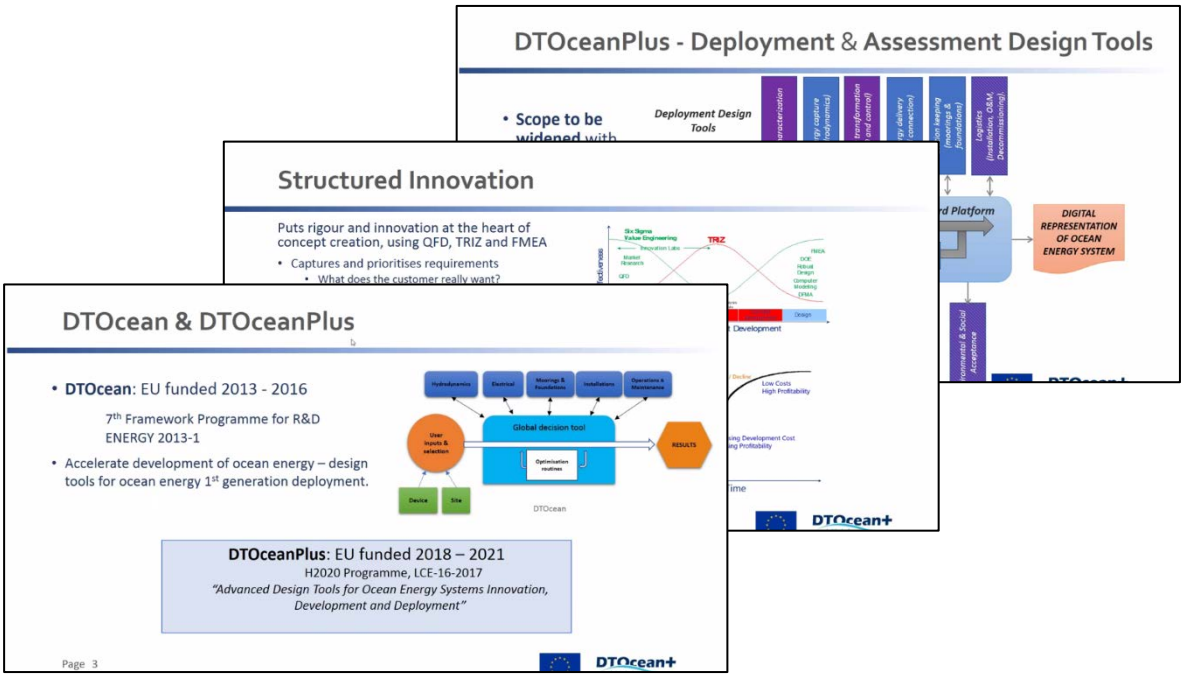
Dr. **Mathew Topper**, founder of Data Only Greater, said: *"Working with Sandia, we found a number of bugs that prevented the tool from functioning correctly. I managed to fix these and, at the same time, solve some of the scientific challenges that remained from the original DTOcean project. That work has now formed the basis of a journal article, currently under review, and this new release of DTOcean."*

Given a set of user inputs regarding the chosen wave or tidal energy converter and array location, DTOcean can automate device layout, balance of plant, logistics procedures and lifetime array maintenance requirements. By designing balance of plant at component level, the impact of individual components on LCoE can be understood.

Random component failures and stochastic weather conditions are combined to form a unique statistical representation of LCoE, which can be used to determine the likelihood of different components or array layouts achieving a particular value, the company explained.

The H2020 EU DTOceanPlus project partners are developing the next generation of advanced design tools. This 3-year project began in May 2018 and will conclude in April 2021.

ANNEX V: SELECTION OF SLIDES PRESENTED DURING THE WEBINAR #1



CONTACT DETAILS

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www.dtoceanplus.eu

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