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DELTA

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Project Full Title: **Future tamper-proof Demand rEsponse framework through seLf-configured, self-opTimized and collABorative virtual distributed energy nodes**

Grant Agreement: **773960**

Project Duration: **36 months (01/05/2018 – 30/04/2021)**

DELIVERABLE D8.4

Report on Communication and Dissemination Activities

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Executive Summary

The purpose of this deliverable is to provide an account of the communication and dissemination activities in the DELTA project in its first 12 months. Deliverable D8.4, Report on Dissemination and Communication Activities v1, sets out the activities and impact of communication and dissemination actions undertaken by the DELTA project partners. This deliverable forms part of WP8 Dissemination, Communication and Exploitation Activities and is associated with T8.1 Dissemination and Communication Plan and Activities.

Informing our stakeholders and sharing DELTA's results is of prime importance to the project. Our communication activities will reinforce our commitment that as a result of European Union collaboration on the DELTA project, more will be achieved than otherwise possible and that our actions are relevant to the everyday lives of European citizens.

The main content of this report is an overview of our activities relating to communication and dissemination in year one of DELTA, following the project's kick-off in May 2018. Our activities are described by channel. These channels were outlined in D8.3 and consist of:

- Website
- Social and digital media
- Marketing materials
- Conferences and events
- Journal and conference papers
- Technical workshops
- Pilot-site workshops
- Mainstream media

The impact of communication and dissemination on the project objectives and the status of communication and dissemination KPIs will also be covered in this deliverable.

Although the primary objective of this deliverable is to report the 1st year achievements for communication and dissemination activities according to the Grant Agreement, we will also use this report to look forward to year 2 of the project. An overview of dissemination and communication activities is included. A plan for disseminating the project's results is also included in this report.

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List of Acronyms and Abbreviations

Term	Description
BRP	Balance Responsible Party
DoA	Description of Action
DR	Demand Response
DSO	Distribution System Operator
EC	European Commission
ICT	Information and Communication Technology
KPI	Key Performance Indicator
TRL	Technology Readiness Level
TSO	Transmission System Operator
WP	Work Package

1. Introduction

1.1 Scope and objectives of the deliverable

The purpose of this deliverable is to provide an account of the communication and dissemination activities in the DELTA project in its first 12 months. The energy sector is going through a period of important change and transition as Europe looks to meet climate change and emissions goals. The space which DELTA occupies, that of demand response, is becoming an increasingly talked about option for adding flexibility to energy markets. It is important that DELTA keeps stakeholders informed of our progress and abreast of our research innovations in order to maximise the impact of the project on demand response practices, and the wider energy sector.

Much has been achieved in terms of creating awareness of DELTA in the first 12 months of the project. As technical progress continues and measureable results become available, these activities will provide a good basis for effective dissemination and exploitation.

With this in mind, this deliverable will outline a dissemination plan for the project, building on the strategy that was developed in month 6 (D8.3). Central to this plan is the work undertaken by partners in achieving the technical goals of the project.

When discussing the actions of the last 12 months, it is also important to look ahead and offer insight into our strategy for year 2 of DELTA. Constantly informing our stakeholders and sharing our results for further use will mean that DELTA is an impactful project and can make a real difference to European society and its citizens.

1.2 Structure of the deliverable

This report will firstly explain how communication and dissemination has an impact on the overall objectives of the project as listed in the DoA. Constantly reviewing these objectives helps to focus our messages, expand our audience and make effective and appropriate use of communication and dissemination channels.

An overview of communication and dissemination activities is offered in section 3. This section is broken into activities by channel which were outlined in D8.3. The impact of these activities on communication and dissemination KPIs is explored with lessons learned and the proposed next steps needed to not just meet KPIs, but exceed them.

Section 5 of this report looks ahead to our strategy for the remainder of the project, and also includes specific dissemination plans which will ensure DELTA research has a lasting effect in the demand response and wider energy sector.

1.3 Relation to Other Tasks and Deliverables

The table below outlines which deliverables are most closely linked with D8.4. These are deliverables that either come under the efforts of WP8 or are pertinent in terms of reporting on the project's progress. It is important to note that for the purposes of dissemination, the technical deliverables play a huge role in delivering material that can be used for our peers' future work. A combination of all of this has an impact on the monitoring and progression of the dissemination strategy, as shown in Figure 1 below.

Table 1. Relationship with other deliverables

Deliverable	WP	Title	Lead	Document Type
D8.5	8	DELTA Exploitation Plan v1	CARR	Confidential report – M24
D8.7	8	Report on dissemination and communication activities v2	CARR	Public report – M24
D8.8	8	Report on dissemination and communication activities v3	CARR	Public report – M36
D8.9	8	DELTA Exploitation Plan v2	CARR	Confidential report – M36
D9.3	9	Annual Progress report v1	CERTH	Confidential report – M12
D9.4	9	Final Report	CERTH	Public report – M36
D9.5	9	Annual Progress Report v2	CERTH	Public report – M24

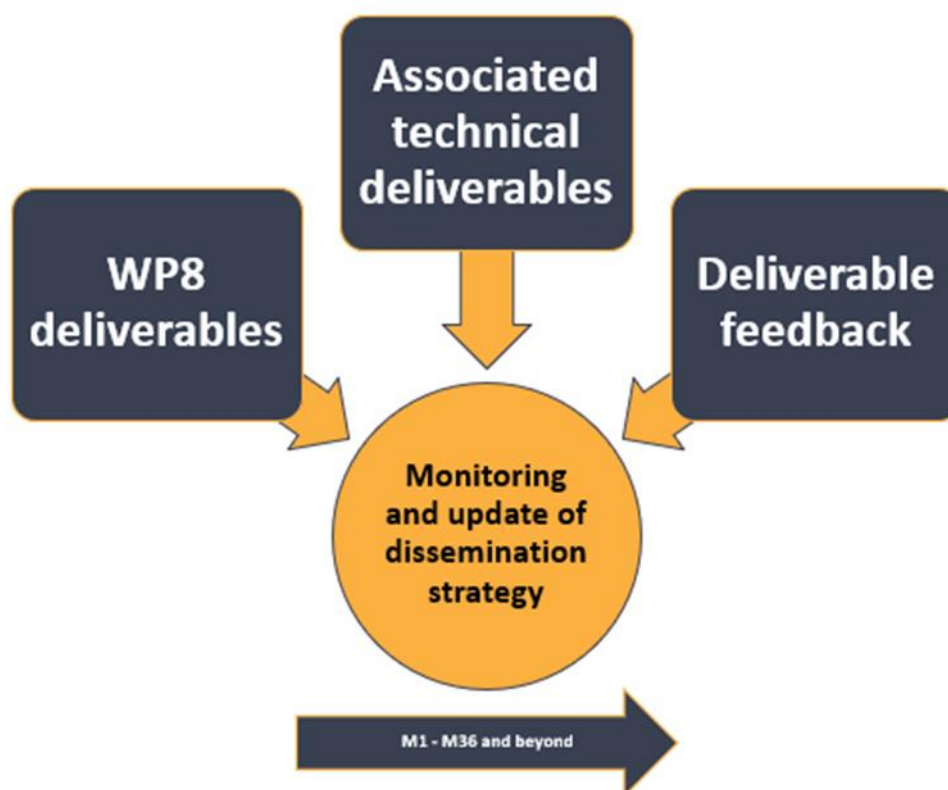


Figure 1. Deliverables and dissemination

1.4 Authorship

CARR, the author of this deliverable, is the partner responsible for leading WP8 in the DELTA project and thus CARR will take the lead on the dissemination activities in the project. CARR will ensure that the dissemination objectives set out in the WP8 description of the DoA are met. The main objectives include the design and development of a DELTA dissemination and communication strategy as well as the delivery of high impact dissemination activities. This entails influencing the attitudes and

behaviours of key stakeholders towards the objectives of the DELTA project, and generating significant stakeholder interest and engagement with the results and outputs of the project.

1.5 Intended readership

As this is a public deliverable the intended readership is anyone who has an interest in the progress and development of the DELTA project. The deliverable will be made available on the DELTA website once approved by the European Commission.

2. Impact of communication and dissemination on DELTA objectives

DELTA, through its ideas and innovations, wants to see a world where demand response practices are more efficient and easier to manage. Improving DR practices, especially at the small to medium scale level, can encourage the uptake of renewable energy sources and promote a more consumer-centric energy grid.

As we look back over the first 12 months of DELTA, it is important to revisit the project objectives in order to better understand what it is that the DELTA partners are trying to communicate and disseminate.

Below are the key objectives of DELTA, as described in the Description of Action:

- To relieve aggregators from complex and resource heavy tasks, based on the innovative proposed ‘Virtual Node Platform’ concept;
- To propose and implement a game-changing DR framework, for effectively exploiting energy flexibility of small and medium-scale consumers as well as distributed energy resources, for ensuring optimal energy balance coordination in the smart distribution grid;
- To propose the appropriate mechanisms and interoperable interfaces for secure, bi-directional information flow along the different energy stakeholders in the DELTA eco-system;
- To improve customers’ awareness and DR engagement through collaboration, gamification and innovative user interfaces;
- To deliver real-time intelligent monitoring and control through a fog-enabled lightweight toolkit at customer level; and
- To propose, demonstrate and validate innovative and viable business models and offerings for next-generation DR aggregators who pursue their portfolio expansion with small and medium scale prosumers, while improving customer engagement, loyalty and mindshare.

These objectives are still the central pillars of what is being achieved by the DELTA partners. They are important in communication and dissemination activities for a number of reasons;

- They shaped our analysis of project breakthroughs, which are focused on a current situation within the energy sector;
- Our objectives support our key messages, which we use in communicating and disseminating DELTA; and
- They assist in prioritising our key stakeholders and choosing the most effective channels and activities to reach them.

Our breakthroughs, key messages, audiences, channels and activities are listed in D8.3. In the next section of this report, these channels and their relevant activities are broken down to correspond with communication and dissemination efforts undertaken in the first 12 months of DELTA. In section 5, these are further expanded upon with specific audience alignment, as the project is now moving into its dissemination phase. This section forms the plan to disseminate the DELTA results.

The graphic below offers a visual representation of where the project currently sits in terms of communication and dissemination (circled in red). We have now begun to move into the dissemination phase, with the delivery of two technical deliverables in month nine of the project. It is important to note that communication activities will continue throughout the entire project, to inform new stakeholders of DELTA’s presence. A solid grounding in communication and dissemination activities has a positive affect on a success exploitation phase, to begin later in the project.

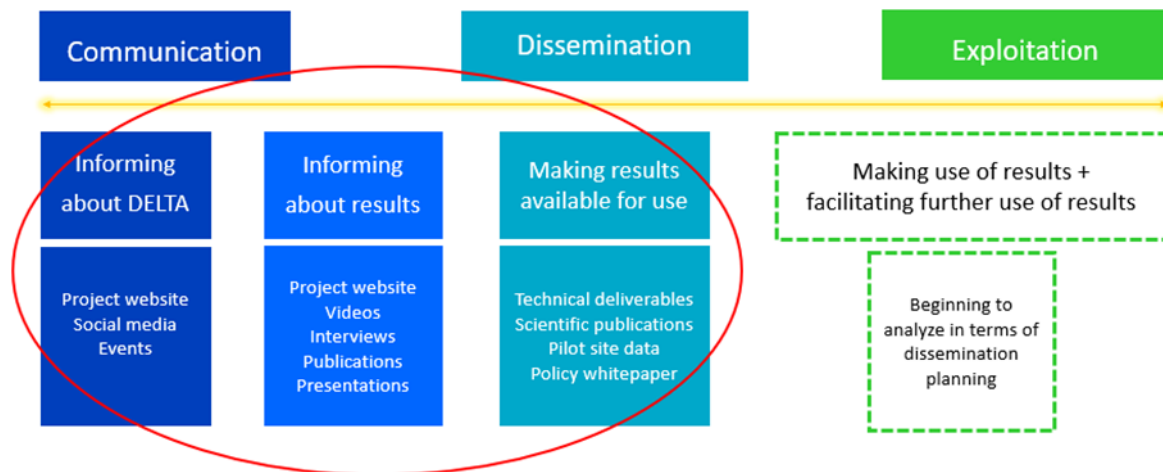


Figure 2. Communication and dissemination progress

3. Communication and dissemination channels and activities

In this section of the report each of our identified channels (see D8.3, Figure 2) is covered in detail in respect to the communication and dissemination activities which have taken place in the first 12 months of the project. As the project has only recently moved into the dissemination phase, much of what is covered is related to communication. Our proactive communication so far has laid good groundwork for ensuring impactful dissemination, as we look towards years 2 and 3 of the project.

The channels to be outlined are as follows:

- Website
- Social and digital media
- Marketing materials
- Conferences and events
- Journal and conference papers
- Technical workshops
- Pilot-site workshops
- Mainstream media

3.1 Website

The DELTA website serves as a central hub for the project's identity, objectives, news, details and updates. It was officially launched on June 22nd 2018 and has continued to be an important aspect of the project.

The most active area of our site is the news section where blogs and project updates have been uploaded. We are keen to highlight the expertise within the project consortium, so our blog posts are designed to be educational to visitors while also informing what DELTA is creating. Our attendance at events is also showcased. So far, 13 posts have been added to the website thanks to content developed from several partners.

Below are some examples of posts, which can be found in the news section of the DELTA website.

FIRST DELTA PROJECT MEETING HELD IN THESSALONIKI

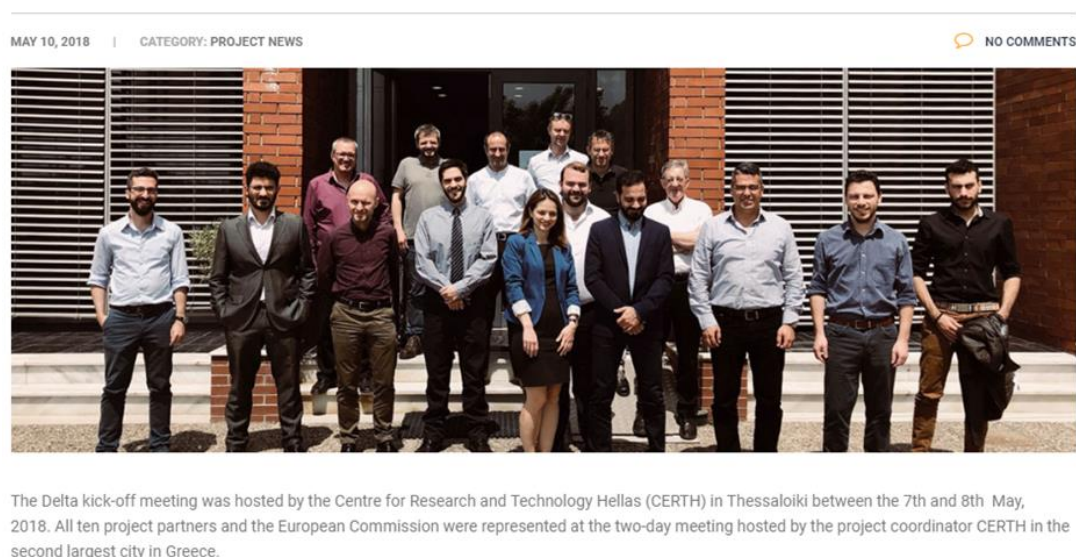


Figure 3. DELTA consortium, kick-of meeting. Credit: Carr Communications

ACHIEVING FLEXIBILITY OF ENERGY DEMAND – A CORNER STONE FOR ENERGY TRANSITION IN EUROPE!

OCTOBER 4, 2018 | CATEGORY: NEWS

NO COMMENTS



Figure 4. E7 blog post

JOINT WORKSHOP ON NEXT-GENERATION DEMAND RESPONSE

OCTOBER 25, 2018 | CATEGORY: NEWS

NO COMMENTS

Solutions for Next Generation Demand Response services

Conference & Workshop
Hosted by eDREAM and DELTA project



Museum of London - The Garden Room

www.edream-h2020.eu

www.delta-h2020.eu

Register for free [HERE!](#) On November 26th a joint workshop and conference will be held in London between two EU funded research and innovation projects, DELTA and eDREAM. Working on the next generation of demand response technology and innovation.

Figure 5. Joint workshop announcement

As DELTA operates in what is a constantly changing and quite technical sector, a glossary of terms was added to the site so that visitors can quickly get up to speed with the content of DELTA. This will be updated regularly as our progress continues and more technical deliverables are completed.

DELTA GLOSSARY

DELTA PROJECT > ABOUT DELTA > DELTA GLOSSARY

[JOIN THE DISCUSSION](#) >

Below are a list of terms and phrases which are central to the DELTA project. Many of the acronyms and terms are used in different fields, so highlighting their relevance to DELTA is important for our stakeholders. As the project develops and matures, so too will this list.

Figure 6. DELTA website glossary

The website analytics have proven to be strong since the launch, with a particularly impressive bounce rate¹ of 28.57% at the time of writing. A bounce rate is a percentage of users who have visited the DELTA site and left before navigating to another page within the site. This tell us that 71.43% of our visitors have shown enough interest in DELTA to remain on the site and look for further information. Pages on the DELTA website, including the news section, have been viewed over 4,200 times and a large majority of our visitors are new as opposed to returning.

Pageviews ? ↓	Unique Pageviews ?	Avg. Time on Page ?
4,216 % of Total: 100.00% (4,216)	2,176 % of Total: 100.00% (2,176)	00:01:04 Avg for View: 00:01:04 (0.00%)

Figure 7. Website pageviews

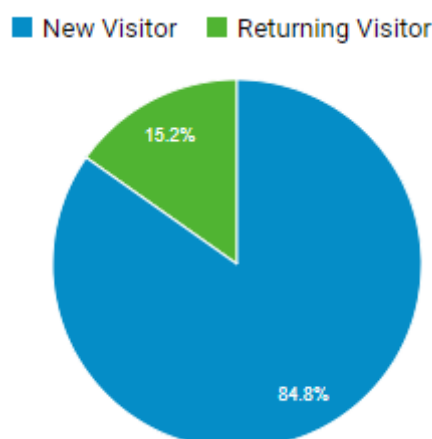


Figure 8. Website visitors

3.2 Social and digital media

Social and digital media has and will continue to play an important role in making our stakeholders aware of the DELTA project and highlighting our progress. DELTA is currently active on 2 social media platforms, Twitter and YouTube.

A social media grid can be seen below which displays the rationale for the platforms DELTA will be active on throughout the project.

¹ Bounce rate is the percentage of visitors to a particular website who navigate away from the site after viewing only one page. A high bounce rate indicates that the page is not engaging enough and people move away from it quickly. “As a rule of thumb, a bounce rate in the range of 26 to 40 percent is excellent. 41 to 55 percent is roughly average. 56 to 70 percent is higher than average, but may not be cause for alarm depending on the website. Anything over 70 percent is disappointing for everything outside of blogs, news, events, etc.”

Table 2. Social media grid

Platform	Yes/No	Why?	Active?
Twitter	✓	<ul style="list-style-type: none"> Active base of relevant stakeholders (i.e other projects, influencers, SMEs) Effective for 'live-tweeting' of events (i.e plenary meetings, conferences) Allows for attractive display of content from other platforms (i.e website, YouTube) Provides strong interaction and engagement with stakeholders thanks to retweets, tags, likes Allows for multiple content types (videos, infographics, images, GIFs) 	✓
LinkedIn	✓	<ul style="list-style-type: none"> Wide base of professional stakeholders Allows for different type of engagement (i.e more focussed on dissemination than communication) Better opportunities for more meaningful networking (i.e for workshop collaboration) 	x
YouTube	✓	<ul style="list-style-type: none"> The ideal platform for sharing video content Opportunity to expose DELTA to a massive audience (over 1.9bn monthly users) Videos can be both descriptive and personable 	✓
Facebook	TBC	<ul style="list-style-type: none"> While Facebook user stats are impressive, engagement is not as effective with only 1%-5% of those who have liked a page actually seeing that page's content The platform can be more suited to large businesses who can afford to maintain active paid-for advertising There may exist opportunities to develop specific Facebook groups for our pilot-site testing (i.e within residential areas). This will be investigated through occupant surveys 	N/A

Instagram	x	<ul style="list-style-type: none"> Totally reliant on imagery, Instagram is an unsuitable platform for DELTA. While it is likely strong imagery will be gathered over the course of the project this will be intermittent (for example at the pilot testing, plenaries and conferences) and not suited to maintaining a regular posting schedule Twitter and LinkedIn also offer better means to target the most appropriate stakeholders 	N/A
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Twitter

The DELTA Twitter page has, to date, been the most active social media channel. It was established in May 2018, and has shown consistent growth to date and has averaged over 18 new followers per month. Followers represent a wide variety of interests, including but not limited to:

- Other Horizon 2020 projects
- Journalists
- EU bodies and officials
- Blockchain initiatives
- Academic researchers

The DELTA Twitter page is used to promote content hosted on our website, as well as content created specifically for Twitter (for example, infographics).



DELTA Project @delta_eu · Jan 24

Smart devices will soon be cornerstones of how we manage energy consumption but how can all that data be safely and securely connected and shared? Read the insights of DELTA partner @oeg_upm on smart energy: bit.ly/2DwsEUs

@Natalie_Sam @Standards4EU
#energy #digital



Interoperability in the Smart Energy Domain

In our digital future, there will be billions of connected devices. The aim of the European Commission Communication on ICT Standardisation Prioritie...

delta-h2020.eu



Figure 9. Cross promotion of blog post



Figure 10. DELTA Twitter infographic



Figure 11. Twitter engagement with European Utility Week organisers

Our content is constantly monitored and evaluated in order to ascertain what is most appealing and attractive to our audience on Twitter. This is done in the form of a content maintenance plan which is updated with analytics at the end of every month. As our presence grows on more platforms, this information will be merged to ensure that content is cohesive and impactful. A snapshot of this plan can be found in the appendix of this report.

Your Tweets earned **18.2K impressions** over this **28 day period**

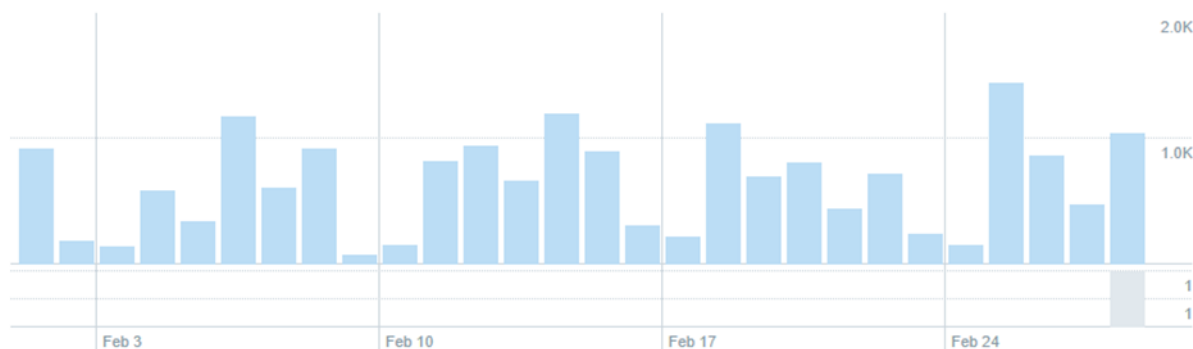


Figure 12. Twitter impressions, February 2019



Figure 13. High performing tweet (1)

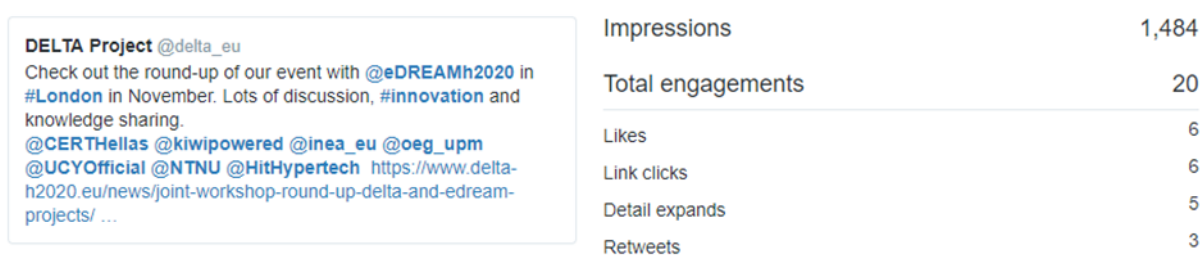


Figure 14. High performing tweet (2)

Twitter also promotes two-way communication with influencers in the sector which DELTA operates. This communication and ability to reach out to those who may be able to amplify our message has already worked to good effect so far:

- Contact with and subsequent video content with European Utility Week brand ambassador
- Media query from a UK-based journalist leading to coverage in an international publication



The DELTA YouTube channel was created December 2018 as a means to showcase DELTA in an audio-visual setting. The channel currently has one video uploaded, with another in production. Our first video currently has 50 views. In addition to that, material was gathered at the first plenary meeting as well as subsequent event attendances to compliment future videos.

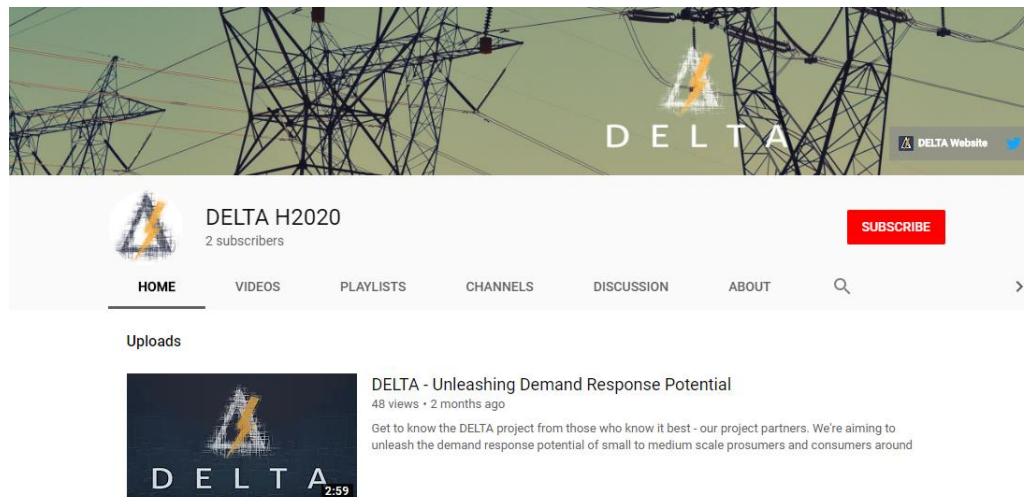


Figure 15. DELTA YouTube channel

We have cross promoted our content, and made use of social media sharing plugins to drive traffic between our channels and website. Having a strong brand identity, developed early in the project and covered in D8.1, helps to create a consistency and positive image amongst our social and digital presence.



A LinkedIn DELTA page has not been set up at the time of writing this report. The reason for this is a deliberate one. A DELTA LinkedIn page will be much more attractive and insightful to our stakeholders when we can share more technical expertise arising out of our deliverables. LinkedIn is a much more appropriate channel for this type of information as opposed to Twitter and YouTube and will benefit from consistent and regular content in line with the increase in technical progress of DELTA.

Considering the timing of some of the initial technical deliverables, for example demand response strategies, business and use cases and project architecture being completed in months 9 to 12, the LinkedIn page for DELTA will be set up in the early months of year 2 of the project.

3.3 Marketing materials

As important as a strong brand is on our online channels, a visible and striking brand is just as important for our offline marketing channels.

To date, two versions of a DELTA leaflet and two versions of a DELTA poster has been created to promote the project at events, conferences, partners' offices and institutions and any networking opportunities.

3.3.1 Posters

The initial project poster was designed to offer a more technical overview of the project, with more details and imagery relating to project architecture and timelines. This was then updated to include more relevant and specific information on the central pillars of the project as well as pilot site locations. The posters have been displayed at events and supplied to partners in print-ready online files should they be required on an ad-hoc basis.

An updated version of the project poster can be found in Annex A.

3.3.2 Leaflets

Our first project leaflet was designed to give stakeholders extra information about the DELTA project. The background and motivation for creating the DELTA solution, as well as the main technical elements of the project – the DELTA Virtual Node (DVN) and Fog-Enabled Intelligent Device (FEID) – are described in the leaflet.

The second leaflet for DELTA within the first 12 months of the project was a collaboration with another Horizon 2020 project, eDREAM. This leaflet was prepared with the eDREAM team in advance of our joint workshop which was held in November 2018. This incorporated information from earlier leaflet and poster designs, as well as some extra information directed towards the type of stakeholder present. More information on this event can be found in section 3.6.

Examples of the project leaflets can be found in Annex B, C and D.

All marketing material designed thus far, and going forward, will adhere to our branding guidelines for color and typeform.

To date, as a result of events, plenary meetings and networking more than 190 leaflets and over 10 posters have been displayed/handed out by DELTA partners.

3.4 Conferences and events

DELTA has had a number of event and conference appearances in the first 12 months of the project. Consortium representatives from CERTH, CARR, UPM, E7 and KIWI have networked and engaged with stakeholders, as well as presented some of the core objectives of DELTA. Below is a list of those attended by partners:

- 2018 International Conference on Innovations in Intelligent Systems and Applications (sponsored by the Institute of Electrical and Electronics Engineers) – July 2018, Thessaloniki
- European Networking Workshop on Energy Systems (organized by the Italian Agency for the Promotion of European Research) – July 2018, Rome
- Low TRL Smart Grids and Storage Meetings Project Clustering (organized by the INEA) – October 2018, Brussels
- European Utility Week – November 2018, Vienna
- Innovation and Networking Days (organized by Links Foundation, the Fraunhofer Institute for Applied Information Technology and Istituto Superiore Mario Boella) – November 2018, Torino
- CEN-CENELEC Mapping Ontologies Workshop - November 2018, Brussels
- CES 2019 (organized by the Consumer Technology Association) – December 2018, Las Vegas

DELTA was presented to attendees at the first five of these events, offering stakeholders and interested parties an idea of what DELTA was aiming to achieve across the 3 years of the project and the technical innovations being investigated.



Figure 16. Dr Dimos Ioannidis presenting DELTA at Innovation and Networking Days.
Credit: Links Foundation

Our attendance at European Utility Week in early November was a particular success in both communicating and disseminating the DELTA project. With a stand in the EU Projects Zone, DELTA was able to network with some of our key stakeholders amongst an audience of over 12,000. One of only 24 Horizon 2020 projects to exhibit, we used the opportunity to engage with our audience in a number of ways:

- Secured international media coverage (details available in section 3.8)
- Produced video content with the event brand ambassador (video can be found [here](#))
- Circulated questionnaires which directly impacted our work in D1.1 (sample available in the appendix of this report)
- Presented the project to 40+ attendees in the EU Project Zone
- Networked with stakeholders and swapped contact details for future collaboration

The event had a positive affect on our Twitter feed, achieving 8,000 impressions on our tweets, 60 likes, 23 retweets and a number of new followers. There was also a noticeable spike in visits to the project website during European Utility Week 2018.

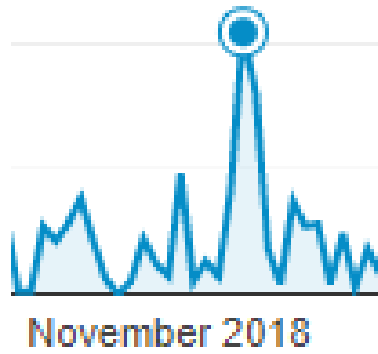


Figure 17. Page view spike during European Utility Week

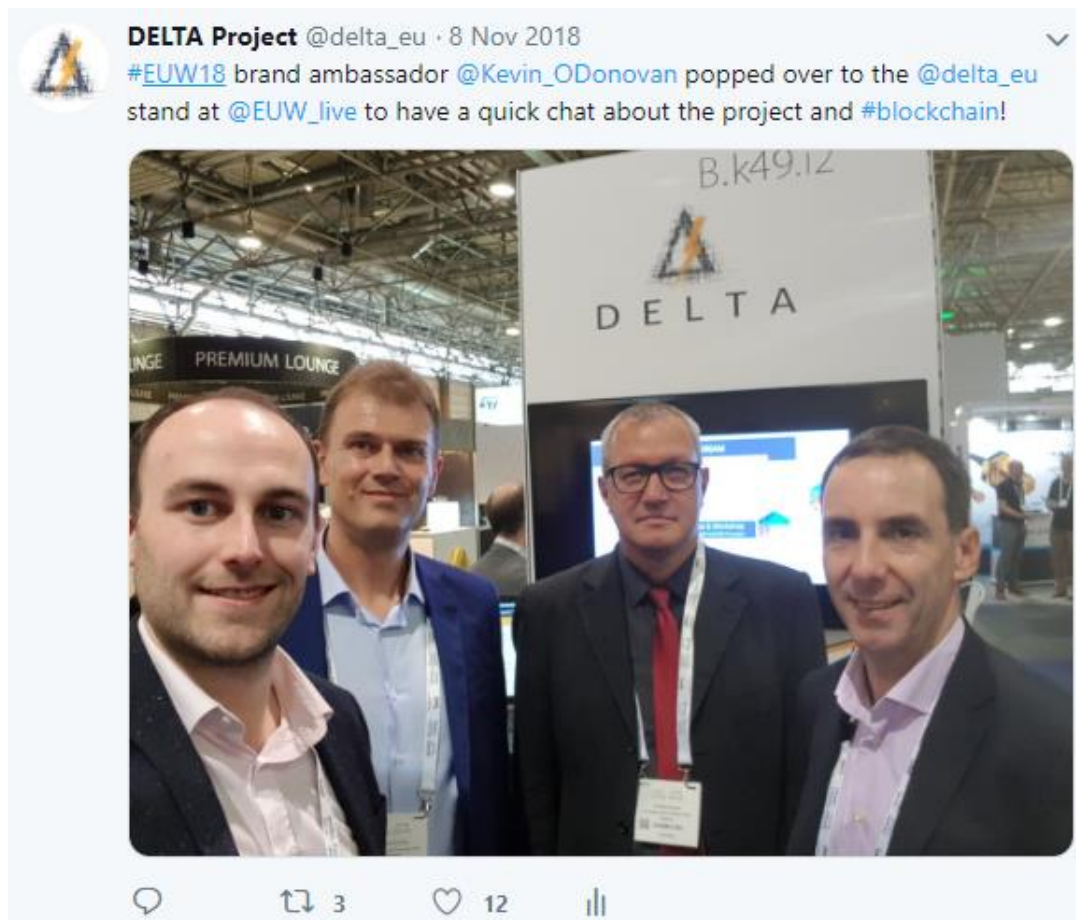


Figure 18. DELTA partners Andrew Smith, Dr Stelios Krinidis and Christof Amman with European Utility Week 2018 brand ambassador Kevin O'Donovan. Credit: Andrew Smith

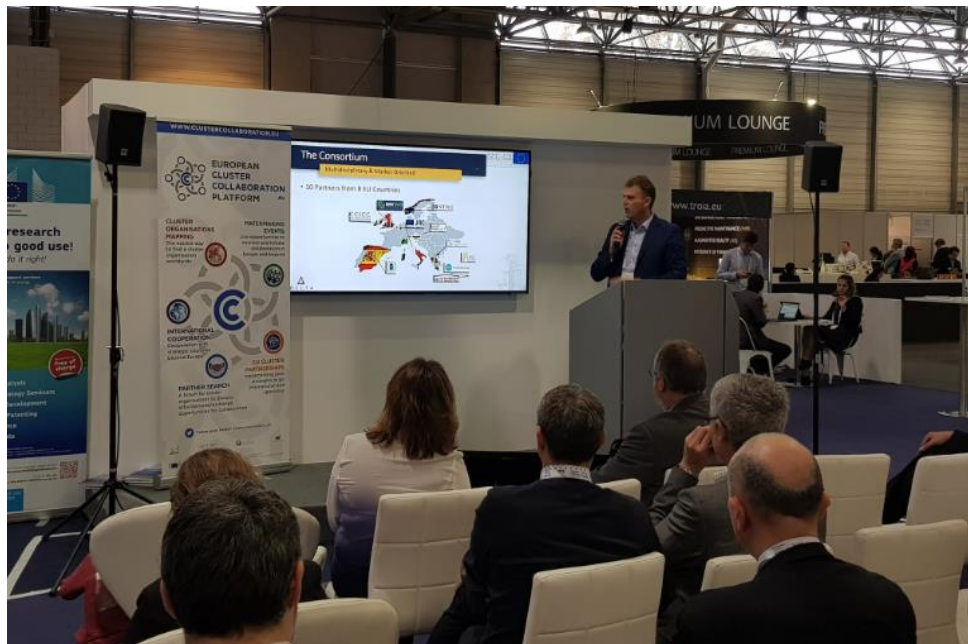


Figure 19. DELTA partner Dr Stelios Krinidis presenting the project at European Utility Week 2018. Credit: Andrew Smith

Our participation in the CEN-CENELEC mapping ontologies workshop and our participation in the INEA low TRL project clustering meeting has also allowed DELTA, through our partners in CERTH and UPM, to take a lead in interoperability for demand response around Europe.

This opportunity will allow DELTA to drive the discussion on the importance of standards and interoperability in demand response throughout the energy transition.

3.5 Journal and conference papers

Within our first year, one paper has been authored by DELTA partners:

- “A secured and trusted demand response system based on blockchain technologies” – presented at the 2018 Innovations in Intelligent Systems and Applications (INISTA) conference.

DELTA has also been accepted for a paper and subsequent conference presentation on the subject of energy market regulation. This effort is being led by E7 and CERTH. The paper is titled, “New business models enabling higher flexibility on energy markets” and will be presented at the ECEEE (European Council for an Energy Efficient Economy) conference in June 2019.

Also, in June 2019, a paper entitled, “Permissioned blockchains and virtual nodes for reinforcing trust between aggregators and prosumers in energy demand response scenarios” will be presented at the 19th annual conference of the International Conference on Environmental and Electrical Engineering.

3.6 Technical workshops

Technical workshops give DELTA the opportunity to share our research and findings with some of our key audiences. From the outset of the project it was envisaged that DELTA would create partnerships with other Horizon 2020 projects in order to do this as effectively as possible, so as to contribute our insight and expertise for the ultimate benefit of society.

Our first such partnership came as a result of two common partners which are shared in both DELTA and eDREAM (www.edream-h2020.eu). Both CERTH and KIWI provide their knowledge in each project, and considering both projects have demand response and blockchain at the core it was agreed that a joint technical workshop would be organized.

The workshop, taking place in London on the 26th of November 2018, was attended by over 40 stakeholders including DNOs, local authorities, facility management companies, power companies and end users (companies who provide distributed energy resources for demand response programmes). Each project presented their core ideas and aims as well as disseminating some of their results. In DELTA's case, at an earlier phase than eDREAM, dissemination focused on our initial work on the viable business and use cases of the DELTA system and early findings relating to our project architecture.

The workshop offered an invaluable opportunity to network with our stakeholders, conduct two way-communication and gain useful feedback – particularly in regards to the business and use cases being discussed. Formal feedback was captured in the form of dedicated questionnaires which helped us in progressing our work in D1.1.



Figure 20. Dr Dimitrios Tzovaras presenting DELTA at the joint workshop with eDREAM.
Credit: Andrew Smith



Figure 21. Discussion at the joint workshop. Credit: Andrew Smith

3.7 Pilot-site workshops

As our pilot-sites are not due to be in operation until year 2 of DELTA, information on how we will approach these is covered in section 5 of this report.

3.8 Mainstream media

Engaging with mainstream media outlets throughout the project will be a key objective of our communication efforts. Print and broadcast media serve as excellent ways to reach large numbers of stakeholders to inform them about DELTA activities. To date, DELTA has secured several pieces of international media coverage.

3.8.1 European Utility Week 2018

Prior to our attendance at European Utility Week, a press release was circulated to specific media publications announcing our presence at the event as well information on the project and availability of partners for media interviews.

Our press release with the headline, “New blockchain tech to accelerate demand response participation” was featured on the homepage of the host media publication for the event, Smart Energy International.

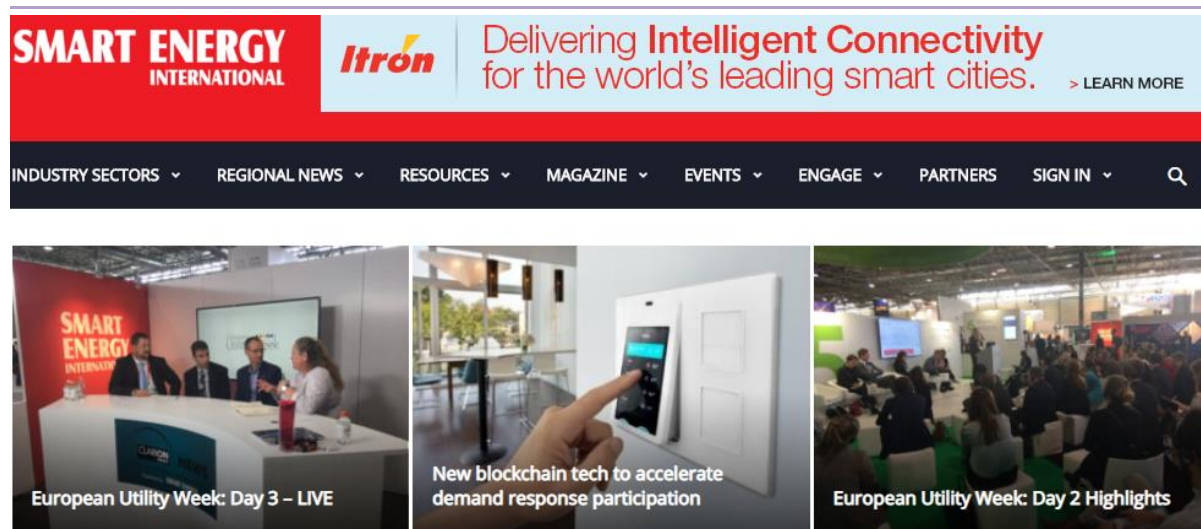
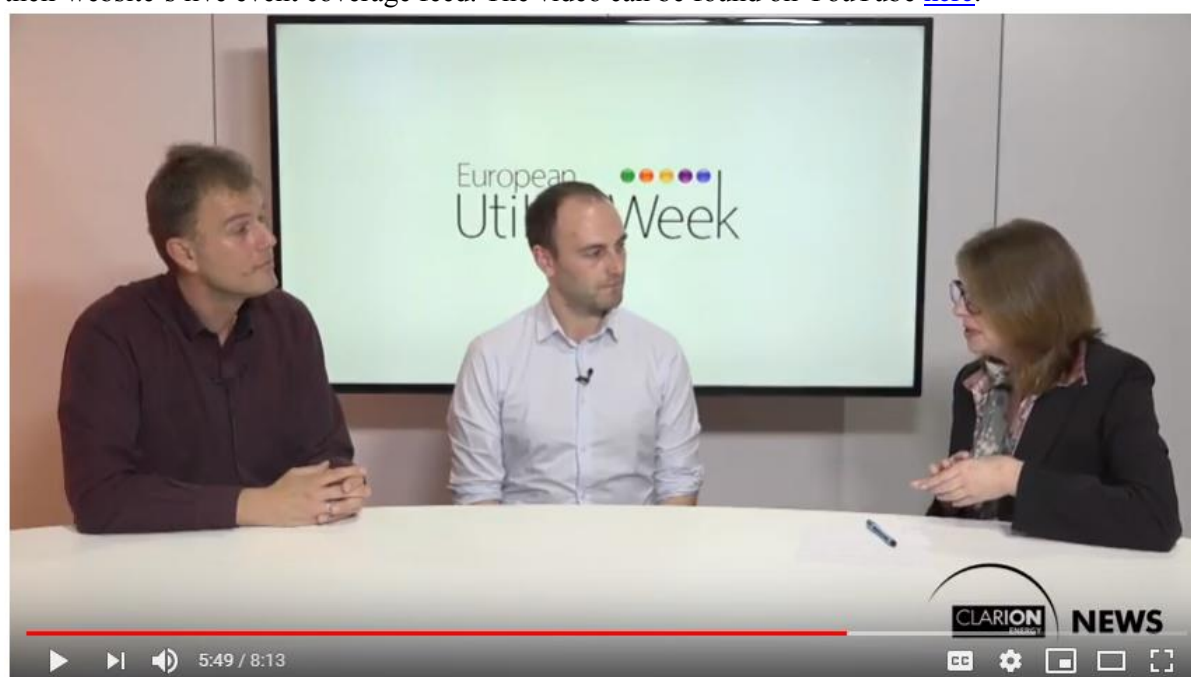


Figure 22. DELTA on Smart Energy International homepage

An online version of this article is available [here](#) and a copy of the original press release can be seen in Annex L.

The project was also invited to interview in the Smart Energy International ‘studio’ to talk about the project, our aims and the blockchain element of DELTA. Two of the project’s partners, Dr Stelios Krinidis from CERTH and Andrew Smith from CARR, were interviewed by the publication. This interview was featured on the Smart Energy International YouTube and Twitter pages, as well as on their website’s live event coverage feed. The video can be found on YouTube [here](#).



Innovation within the global energy sector

Figure 23. DELTA partners Dr Stelios Krinidis and Andrew Smith being interviewed in the Smart Energy International studio. Credit: Smart Energy International

Video interview: Innovation within the global energy sector



Figure 24. DELTA partners Dr Stelios Krinidis and Andrew Smith being interviewed in the Smart Energy International studio. Credit: Smart Energy International

Our European Utility Week press release was also featured on Transmission and Distribution World's website, a specialist online publication which gets over 180,000 page views per month. The release can be seen on the publication website [here](#).

The release was also featured on the publication's Twitter page.



Figure 25. DELTA coverage on Transmission and Distribution World Magazine's Twitter page

3.8.2 Subsequent coverage

As a result of our work with Smart Energy International during European Utility Week, the publication was interested in compiling a feature for their print magazine which is distributed bi-monthly to a readership of 107,000. DELTA was featured in their second edition of 2019, showcasing the project aims, technical innovations and insight from partners on the future of demand response and the potential use of DELTA.

An online version of the article is available [here](#).



Figure 26. DELTA coverage Smart Energy International magazine

DELTA has recently featured in PV Magazine, one of the world's leading publications on the solar power industry. PV Magazine's online website boasts over 340,000-page views per month while the print version has a readership of 75,000. DELTA was showcased in an article relating to a newly established, United Nations funded PV installation within the Cypriot buffer zone. The full article can be accessed [here](#).

Blockchain testing

The PV and battery project in the buffer zone will also contribute to the testing of the E.U.-funded Delta research and innovation project, which aims to establish a more efficient energy demand-response solution for the electricity grid. A spokesman for the Delta project told **pV magazine** that it "will employ a permissioned blockchain system and utilize smart contracts to improve efficiency in demand-response settings, the aim being that aggregators can supply more flexibility to the grid from small- and medium-scale prosumers than currently available."

Figure 27. DELTA in PV Mag

The opportunity for this article came about as a result of DELTA's active engagement with media professionals on Twitter.

DELTA has also been featured on Solarplaza's interactive European map, which showcases active projects and activities for blockchain implementation in the European energy sector. The map can be found [here](#).

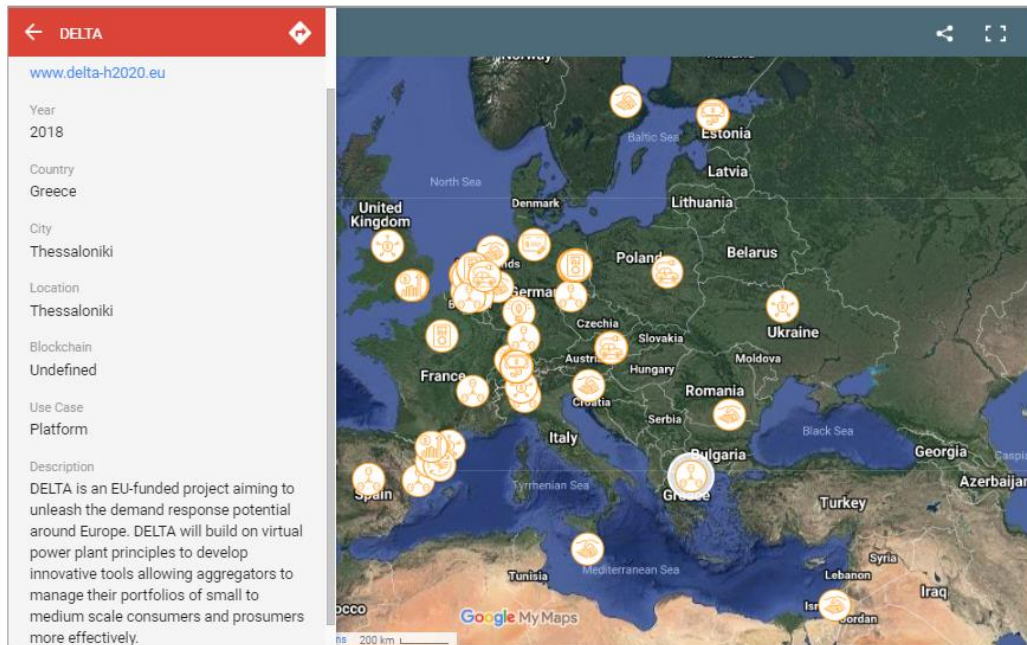








Figure 28. DELTA on Solarplaza's interactive map

4. Addressing the Description of Action and impact on communication and dissemination key performance indicators




Within the DELTA DoA, there exists a specific set of KPIs used to measure the effectiveness of communication and dissemination within the project. In this section, each KPI will be addressed individually and given a rating based on the traffic light rating system.

For this rating system, red is used to show performance is off track, amber for performance which is generally on track but should be improved, and green to highlight that performance is on track. Blue can also be added to denote where a KPI has been met while white is used for an action which has yet to be started. A change/deviation to a KPI is denoted in black.

- | | | |
|---|---|---|
|  Off track |  On track |  Generally on track, needs improvement |
|  KPI surpassed |  To be started |  Deviation |

4.1 Project documentation

Table 3. Documentation KPIs

Type	KPI	Status
Leaflet	1 initial version + update	
Poster	1 initial version + update	
Reference PPT presentation	1 initial version + update	

What was implemented:

- Collaborative design process with all partners to develop the initial project leaflet and poster for sharing with stakeholders at networking events/partner locations. A hardcopy of the initial leaflet draft was presented to partners at the first plenary meeting allowing for active discussion and feedback. Project leaflets and posters have been displayed and handed out at events by partners and an online, print-ready version is available for any ad-hoc needs.
- The initial PPT presentation was designed with project logos and branding allowing partners to add in specific information dependent on particular uses.

Lessons learned:






- Visual display of the project material proved popular with stakeholders (particularly at European Utility Week) and should be maximized at all events attended.
- Encourage partners to carry copies of the leaflet in particular when attending events, even those attended when not directly representing DELTA.

Next steps:

- The second versions of the leaflet and poster are currently in development
- Now that technical progress in the project has advanced with clearer understanding of architecture and use cases, a 'one size fits all' reference PPT can be designed which can last the duration of the project and beyond.

4.2 Project publications

Table 4. Publication KPIs

Type	KPI	Status
Project newsletter	6 (semestrial issue) with at least 500 'signed up' participants	
Articles and proceedings	3 publications per year (in average)	
Project deliverables	See list of deliverables	
Open access repository	1 deposit per year	
Project video/slideshow	1 initial version + 5 update videos with at least 1,000 views	

What was implemented:

- The first project newsletter was designed as an introduction to the project and our aims, and to showcase the project partners' experience. Mailchimp was utilized so a template could be created allowing brand continuity for subsequent newsletters.
- Within our first year, DELTA has been accepted for one conference paper thanks to our work on business models and market analysis.
- Deliverables have been completed in line with requirements in the DoA and will be uploaded to the website to aid dissemination upon EC approval.
- Technical and non-confidential findings will be uploaded to an open-access repository. Our Data Management Portal has recently been set up and is available to view at, <https://opendata.iti.gr/delta/>.
- Our first project video can be found both on our YouTube channel and website. Similar to the newsletter, it was designed to be introductory and offer a brief overview of the project. Content for the video was gathered during the project's first plenary meeting in Cyprus.

Lessons learned:





- The design phase for both videos and newsletters can be a long process. This needs to be considered when gathering material for future output.
- Accurate executive summaries in confidential deliverables are important so stakeholders can have as much information as possible when a full deliverable cannot be made public.

Next steps:

- The second newsletter, which will primarily focus on the project's technical progress, is currently being developed.
- A new area on the website is under construction where deliverables will be available to view, once accepted by the EC.
- It is important to improve our journal/conference paper output, especially as more and more technical developments are available. Partners should continue to identify potential opportunities for DELTA within journals which they follow and/or have had previous published works.
- At our next plenary meeting, content will be gathered for the next DELTA video. This video will serve as a 'highlight' type video and will also include elements of our presence at European Utility Week 2018.

4.3 Online presence

Table 5. Online KPIs

Type	KPI	Status
Project website	1 website, monthly updated	
Related websites	10+	
LinkedIn	At least 1 monthly update and 350 connections by end of project	
Twitter/Facebook	At least 1 weekly update and 1,000 followers by end of project	

What was implemented:

- As covered in section 3 of this report, our online presence through the website and social media has been active from the very start of the project.
- The website is averaging over one post per month uploaded and we have appeared on several related websites (for example media publications, other YouTube channels and H2020 projects).
- Our Twitter is updated daily and we currently have 264 followers. This is on track to meet and surpass the target of 1,000 followers on Twitter alone.
- DELTA has also appeared on related sites, including media publications (Smart Energy International, PV Magazine), other H2020 projects (eDREAM) and event sites (European Utility Week 2018).

Lessons learned:




- Our online presence has proven effective, as shown by the analytics displayed in section 3 of this report.
- Attendance at events sees an increase in website visits and Twitter impressions and followers. It is important to display the website address and Twitter handle on all publications, presentations etc where possible to drive engagement.
- Visual content on Twitter (for example images of project partners at events or videos) have proven successful and appealing for our online audience.
- More collaboration between partners on digital media is encouraged. For example, partner websites or Twitter feeds should feature DELTA posts where possible.

Next steps:

- Elements of the website are under construction to include an area for deliverables, an enhanced project timeline and an interactive image showcasing a broad-level view of what the project is hoping to achieve.

4.4 Events

Table 6. Event KPIs

Type	KPI	Status
Presentation and feedback sessions	3	
Training sessions	3	
External events	30+	

What was implemented:

- DELTA was proactive with event attendance in our first year, with particular effort from CERTH in their role as project coordinator.
- The project has been presented in forums where attendees have represented multiple audience categories.
- To date, DELTA partners have represented the project at 8 events. This has included 1 presentation and feedback session in the form of our joint workshop with the eDREAM project and 7 external events.

Lessons learned:

- Event attendance has a positive impact on social media. Contacting event organisers prior to our attendance has improved engagement, as seen with interaction before European Utility Week.
- Partners should be encouraged to attend events together, offering a broader and more balanced description of the project.
- Partners should, if possible, use their own social media channels to promote their and DELTA's attendance. This helps in growing the DELTA brand and adds credibility to our work.
- More needs to be done in identifying appropriate events which may arise through partner networks and contacts.

Next steps:

- Create a more concrete structure and timeline for event attendance.
- Identify more H2020 projects for collaboration and future presentation sessions.
- Agree roles and responsibilities for pilot-site training sessions.

5. Communication and dissemination strategy for year 2

In this section of the report, activities for communication and dissemination for the second year of DELTA will be covered. These activities will be addressed under the same categories as in section 3 and provide a roadmap for communicating the DELTA message and sharing our results to our stakeholders.

These activities will be constantly assessed in line with the progress of the DELTA project and adjusted as needed.

This strategy is in line with the methodology and grid for dissemination and communication which can be found in section 2 of D8.3.

The second part of this section will cover a visual representation of the plan to disseminate DELTA's results and findings. This plan is based on our strategy delivered in month 6 of the project and focuses on aligning specific project breakthroughs (which are inherently linked to our technical deliverables) to specific audiences.

This plan for dissemination is further bolstered by the establishment of partner networks. These networks have been outlined by individual partners and represent their professional and academic networks who would stand to benefit from, engage with or seek to use the results gathered from DELTA activities. These networks are available in a consolidated version on the DELTA shared workspace and are not included in this public deliverable so as to comply with GDPR rules. International organisations, and interest groups which are of interest for communication and dissemination activity can be found in Annex D of this report.

5.1 Communication and dissemination strategy for year 2

5.1.1 Website

The DELTA website will continue to be a focal point for communicating our messages and sharing our results. Sections of the website are currently under construction which, once live, will project DELTA's progress. Additions to the website for year 2 of the project include:

- A clearer project timeline with specific work package activities
- An interactive image to better show how DELTA will work in practice
- An area where deliverables can be viewed (or in the case of confidential deliverables, the executive summary)
- An area where journal/conference papers can be viewed
- An online space for the project newsletters

Alongside these specific actions, we will continue to provide updates on project progress through blogs, general news updates and the addition of project audio-visual material.

As the technical aspects of the DELTA project take shape, it will be important to have a discussion forum available on the website, so that stakeholders can ask questions and receive the most up-to-date information. This discussion forum or discussion board will be developed in year two of the project, with promotion and activity planned for year three of the project.

As the pilot-site testing draws closer, the discussion board area will be looked at as a potential for pilot-site participants to provide feedback and foster important two-way communication.

5.1.2 Social and digital media

Growing both the Twitter and YouTube channels will remain a priority in year 2. Video material will be gathered in forthcoming project plenary meetings and pilot-site testing to improve the number of project videos which can be generated and shared on our social channels.

Cross-promoting content will continue in order to drive traffic to and engagement with our online channels. Twitter will remain an important way of engaging with influencers who can magnify the work DELTA is doing.

The set-up of a project LinkedIn page will be a priority into year 2 and the use of Facebook will be investigated as a method of engaging with participants in pilot-sites.

Facebook offers a useful function called ‘Groups’ which can be used a tool to gather specific people together in a private setting to share updates and provide feedback. This may be a particularly useful approach in the UCY testing, where students could be users of Facebook. The validity of this approach will be measured by questionnaires in the lead up to the pilot-site testing.

5.1.3 Marketing materials

Updated versions of the project poster and leaflet will be designed in the early stages of year 2 of DELTA. Production of ad-hoc material for specific events will be considered when necessary (for example, the development of the joint leaflet with eDREAM project).

It is likely that specific material will be needed for pilot-site engagement at our testing sites in Cyprus and the United Kingdom. Possible material to be designed may include:

- Initial invitation/notice
- Training handbooks/posters/leaflets
- Roller banners
- Giant banners
- Branded t-shirts/pens/folders/lanyards
- Social media cutout
- PowerPoint presentations

The appropriate material to create will be discussed with all partners and agreed upon in terms of the logistics for each site as well as timing and budgetary constraints.

5.1.4 Conferences and events

DELTA had a positive attendance record at events in the first year of the project and it is important that this is maintained for year 2 in order to meet and surpass our KPI for external events.

Our involvement with both the INEA low TRL clustering and CEN-CENELEC workshops will provide opportunity for regular attendance at events concerning standardization in the energy sector and a platform to disseminate some of DELTA’s results.

A list of target events is maintained by CARR and will require continued input from partners and a proactive attitude to identifying events in their networks.

Small to medium sized events, often with a specific focus, are important for dissemination and securing speaking opportunities. However, it will be important that DELTA attends a large event, similar to European Utility Week, within our second year to inform a significant amount of people

from multiple audience categories of the project's existence and progress. Events identified for this include:

- European Utility Week 2019
- Future Expo 2019
- Blockchain2Energy Europe 2020
- EU Sustainable Energy Week 2019
- Eurelectric Power Summit 2019

Events provide opportunity to gather material for multiple communication and dissemination activity categories including the website, social and digital media and marketing materials.

5.1.5 Journal and conference papers

Now that DELTA is beginning to see more progress at a technical level, journal and conference papers should become a key focus for technical partners in order to effectively share some of the project's results.

A preliminary list of journals to target was created for D8.3, and this will be revisited and updated with partner collaboration to ensure targets are appropriate and achievable. Partners will be encouraged to reflect on lessons learned from the first year in order to prioritise elements of their work which would be fitting for academic papers.

5.1.6 Technical Workshops

Following the success of the DELTA/eDREAM workshop in November 2018, further joint workshops with similar H2020 projects will be an important element of our dissemination strategy in particular for year 2 of the project. The sharing of knowledge and results and identification of synergies is important in ensuring that the outcome of H2020 projects benefits all of society.

Potential projects for collaboration will be identified through our partners, our social media channels and EC portals.

5.1.7 Pilot-site workshops

The pilot-sites are a hugely important element of DELTA and ensuring engagement with participants is as active as possible will have a direct impact on how successful they are. Prior to the pilot-site kick-off, it will be necessary to organize workshops with participants to generate two-way communication between DELTA and those who occupy our UK and Cyprus pilot-sites.

Participants will need to be fully briefed on the aims and objectives of the testing, what the DELTA system is and how it will impact on their day-to-day lives during the testing period. A major element to be covered will be any privacy concerns participants may have. Specific activities to meet these goals will include:

- The creation of succinct and jargon-free publications (for example leaflets or posters) to provide an overview of the project and the importance of active participation.
- Presentation series, both online and in person, to provide a forum for trouble-shooting and questions.
- Establishment of online channels (for example Facebook Groups) to provide a timely response system before, during and after the testing.
- Potential creation of a 'Pilot-site advisory board' which will look for representatives to come together and provide ongoing feedback to the DELTA partners.

- Short ‘explainer’ style videos which can be accessed by participants on an ad-hoc basis to answer general questions on the DELTA system.
- A booklet for each participant or premises outlining our data management and ethics practices.

The creation of this material will be a key communication activity within year 2, and also provide a solid base for the effective dissemination of the pilot-site results by ensuring participation is positive and pro-active.

CARR, as WP8 leader, has significant experience in behavioural economics and sciences and will use this experience to ensure that material created assists effective decision making and positive participant engagement.

5.1.8 Mainstream media

Media opportunities will continue in both a structured and ad-hoc manner. Structured media engagement will take place in the lead up to pilot-site testing and the development of the main technical innovations of DELTA for example. While ad-hoc media engagement will take place through handling media queries and identifying opportunities off the back of news in the energy sector.

A comprehensive media list is maintained and constantly updated and added to, allowing for accurate identification of the most appropriate publications and journalists to target.

5.2 Year 2 KPIs

In the table below, our target KPIs for communication and dissemination are listed. These have been projected by analyzing our KPIs as listed in the DoA and assessing the lessons learned as outlined in section 4 of this report. These KPIs and associated activities will be revisited in the second iteration of this report, D8.7 and adjusted accordingly.

Table 8. target KPIs year 2

Channel	Target KPIs
Website	<ul style="list-style-type: none"> • 1 x news update/blog per month • 1 x discussion board post per month
Social and digital media	<ul style="list-style-type: none"> • Double Twitter followers to 570 • Set up LinkedIn. Gain 100+ connections • Produce at least 1 project video
Marketing materials	<ul style="list-style-type: none"> • Produce an updated leaflet and poster • Produce a roller-banner for event attendance
Conferences and events	<ul style="list-style-type: none"> • Attend 5 x events where DELTA is presented • Attend 5 x events for networking purposes
Journal and conference papers	<ul style="list-style-type: none"> • A minimum of 5 papers to be authored showcasing DELTA innovations (2 secured for year 2)
Technical workshops	<ul style="list-style-type: none"> • A minimum of 1 workshop after the pilot-testing phase • 1 x webinar
Pilot-site workshops	<ul style="list-style-type: none"> • 4 x pilot-site workshops (1 in Cyprus and 3 in the UK) – to be offered remotely if necessary
Mainstream media	<ul style="list-style-type: none"> • 3 x press releases • 1 x op-ed • 1 x media interview

5.3 Plan for the dissemination of project results

In this section of the report, the funnel for disseminating DELTA's results is displayed. This process represents the progression from our initial dissemination strategy in D8.3 to a plan showing what we are disseminating (our breakthrough), what this means (our key message), who needs to hear about it (our audience) and how we will reach them (channel).

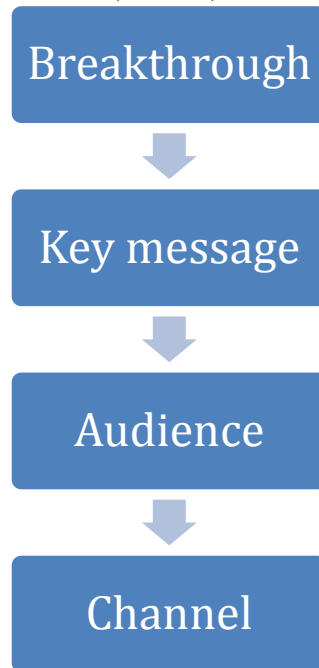


Figure 29. DELTA dissemination funnel

In many cases, and given the space which DELTA occupies, some breakthroughs will apply to multiple audiences. Before outlining this funnel specific to DELTA, it is important to understand the origin of our results. Results to be disseminated will come from:

- Technical deliverables: A key element of DELTA's dissemination. It is important to note that some of the deliverables are confidential and while it may not be possible to share them in full, every effort will be taken to ensure key aspects are shared where appropriate.
- Pre-pilot testing: The early lab testing phase of DELTA will be important for validation, and to convey to our audiences the potential of the project.
- Pilot-site testing: Actionable results from our testing in Cyprus and the UK will provide a measurable insight into DELTA's effectiveness.
- Technical workshops: Inviting our stakeholders to contribute their knowledge and insight is likely to add extra perspective and further our results. These are both a source for results and a forum to disseminate.
- Involvement in working groups/project collaboration: As with technical workshops, DELTA's involvement in collaborations and synergies connected to the project will impact our results and provide a forum for sharing them.
- Innovative business models – as new technical solutions are being developed, new opportunities for existing market players as well as new entrants will be created to provide services which either don't exist today, or which will reshape the way traditional stakeholders are procuring services in the Demand Response markets. It is important to engage early with regulatory bodies and other relevant parties to test viability and interest for the new services and business models.

5.3.1 Dissemination funnel

In the graphics below the 6 DELTA breakthroughs, which are intrinsically linked to our technical progress and results, are specifically linked to particular key messages and how those messages will reach our target audiences.

Breakthrough 1 (B1): *DELTA will develop a scalable IT framework to exploit the flexibility of small/medium scale prosumers.*

Breakthrough 2 (B2): *DELTA will propose business models for the optimal exploitation of designed solution.*

Breakthrough 3 (B3): *DELTA will create the DELTA Virtual Node Platform to assist aggregators in their portfolio management and empower prosumers.*

Breakthrough 4 (B4): *DELTA will introduce the fog-enabled intelligent device (FEID) to each customer. A lightweight analytics engine will be embedded in the FEID to support autonomy and optimisation providing accurate, real-time and historic energy data to the DELTA nodes.*

Breakthrough 5 (B5): *DELTA will improve customer awareness and provide a platform for participation in the market through collaboration, gamification and innovative user interfaces.*

Breakthrough 6 (B6): *DELTA will introduce the use of blockchain technology in order to ensure trust between actors and protect the integrity of gathered data.*

Our activities for specific channels of communication and dissemination will vary depending on the particular breakthrough. For example, for Breakthrough 5, the organization of technical and pilot-site workshops will be important – particularly in the time between the first and second phases of testing. Different types of material will need to be created here, some will be focused on training (targeting the participants) while others will be much more technical and focused on the application and significance of DELTA's results.

While in Breakthrough 3 our target audience is narrower, and this will have an impact on our activities. Publication of specific material directly relating to the needs and interests of aggregators in particular will play an important role in this funnel. The point being, that activities will remain flexible and dynamic in order to deliver on the overall objectives of the DELTA project. Using this process allows us to be dynamic, while also always being mindful of the technical breakthroughs which drive the project.

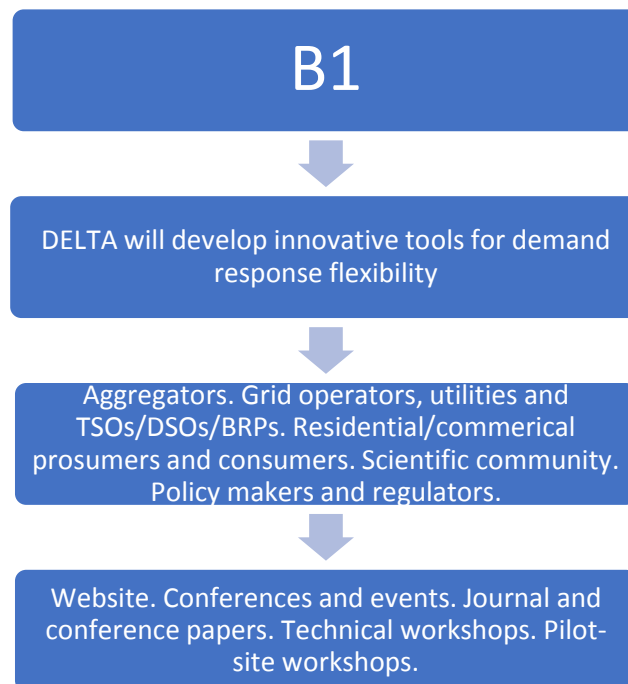


Figure 30. Breakthrough one funnel

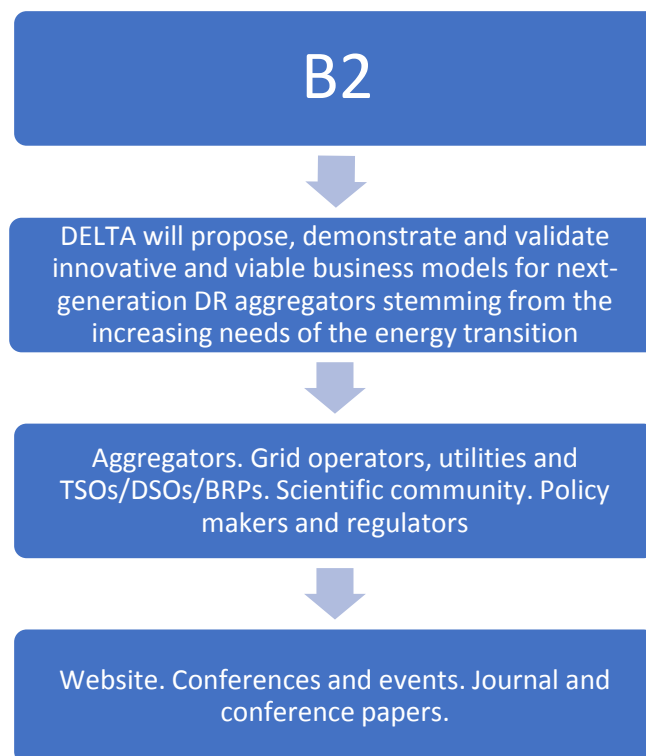


Figure 31. Breakthrough two funnel

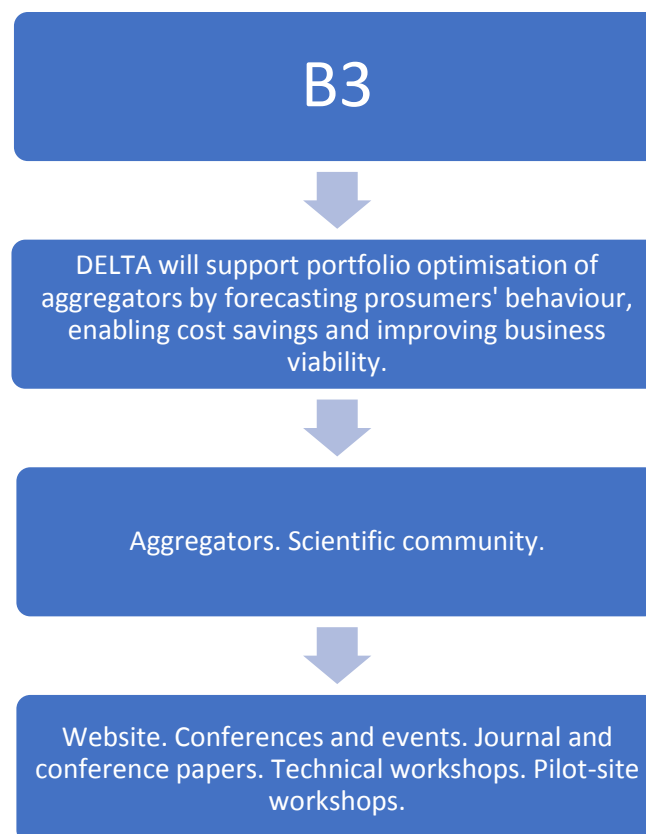


Figure 32. Breakthrough three funnel

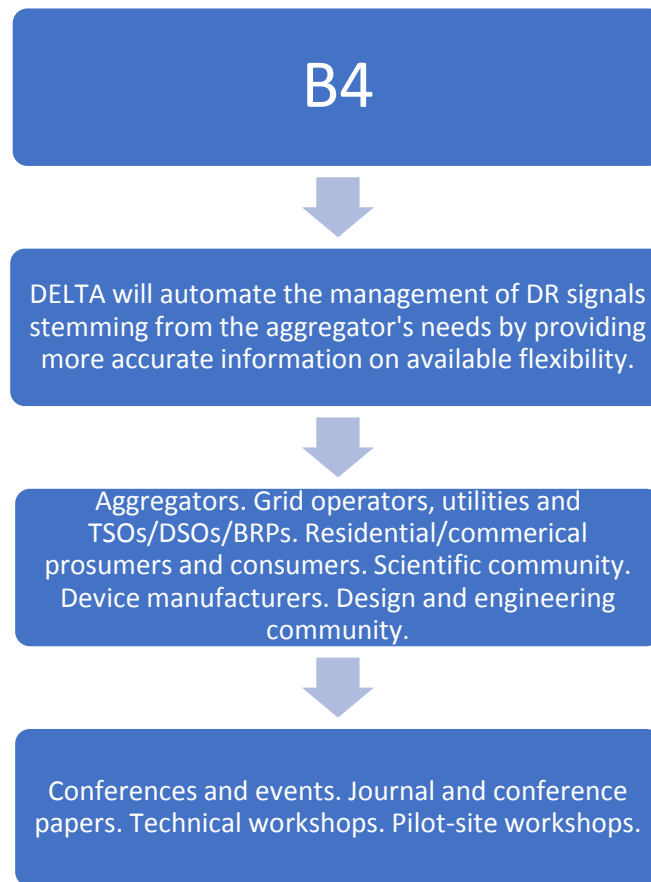


Figure 33. Breakthrough four funnel

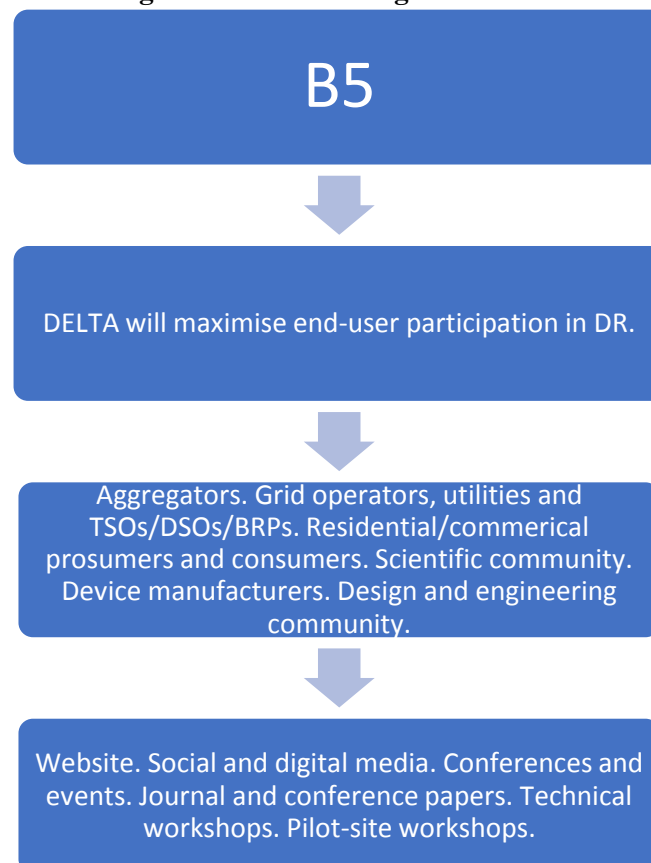


Figure 34. Breakthrough five funnel

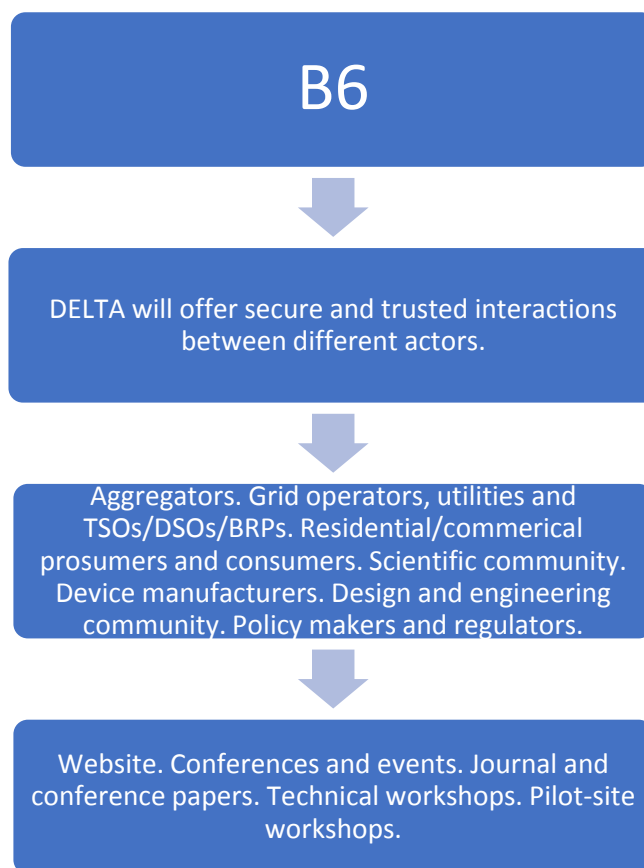


Figure 35. Breakthrough six funnel

6. Conclusions

This document has given an account of DELTA's dissemination and communication activities in year one of the project, as well as an outline for the strategy for year 2. Our dissemination plan, formulated with the key breakthroughs of DELTA as its foundation and complimented by the networks of each partner, shows how and where DELTA will seek to share our results. This ensures that DELTA will provide measurable benefits to a variety of our identified stakeholders.

The priority will now be on improving certain elements which need attention, as covered in Section 4 of this report. The project has achieved good results towards meeting the KPIs for communication and dissemination, and the focus will now turn to surpassing them. Year 2 of DELTA will provide significant opportunities for communication and dissemination activities, particularly as we look towards engaging with pilot-site participants.

A further update on the actions discussed and foreseen in this deliverable will be covered in the second report on communication and dissemination activities (D8.7) in month 24 of the project.

The DELTA project partners possess the necessary knowledge, experience and expertise to ensure, through commitment and collaboration from all partners, that DELTA can benefit society as a whole and contribute to the progress of science.

7. References

1. Peytom, J, What's the Average Bounce Rate for a Website? (2019). RocketFuel. Available at <https://www.gorocketfuel.com/the-rocket-blog/whats-the-average-bounce-rate-in-google-analytics/>

ANNEX A: DELTA Poster (Current version)

Future tamper-proof Demand rEsponse framework through self-configured, self-opTimized and collaborative virtual distributed energy nodes (DELTA)

Project Vision and Mission

DELTA introduces a secure DR management platform that distributes parts of the Aggregator's Intelligence into lower layers of a novel architecture, based on VPP principles, in order to establish a more easily manageable & computationally efficient DR solution, ultimately aiming to introduce scalability & adaptiveness into the Aggregator's DR toolkits:

Medium and Small customers (prosumers or consumers) are also included and will be presented with simplified DR information through:

- Innovative Award Schemes
- Social Collaboration Platform
- Enhanced DR Visualization

Full-scale market & grid services will be provided through explicit & implicit-based DR elasticity services, while overcoming current market regulatory limitations

DELTA project aims to deliver a framework that will bring greater energy security, sustainability and competitiveness to the EU Energy Markets

Key Innovations

- DELTA Virtual Node
- Fog Enabled Intelligent Devices (FEIDs)
- Multi-layered Demand/Supply Clusters

DELTA Concept



Key Enablers

- Blockchain (Smart Contracts)
- Gamification
- Collaboration Platform
- Deep Reinforcement Learning Profiling
- Multi-factor Forecasting

Pre-Pilot Integration and Pilot Sites

Pre-pilot Testbed - Greece

Smart House - MicroGrid



Pilot A - UK

Residential & Tertiary Buildings



Pilot B - Cyprus

University Campus



Project Information

Call	H2020-LGE-2016-2017
Topic	LGE-01-2016-2017
Type of Action	Research & Innovation Action
Coordinator	CERTH, Greece
Project Period	01 May 2018 to 30 April 2021
Grant Amount	EUR 3,873,625
Estimated Project Cost	EUR 3,873,625

Project Partners



DELTA has received funding from the European Union's Horizon 2020 research and innovation programme under grant Agreement No 773960




www.delta2020.eu

ANNEX B: DELTA Leaflet Main Content

DELTA is an EU funded project aiming to unleash the demand response (DR) potential of small and medium-sized electricity prosumers (those who both produce and consume) in Europe. Aggregators and prosumers have the potential to play a hugely positive role in using renewable energy sources to affect this balance. By doing this, utilities do not need to rely on power plants which only contribute to the grid specifically in peak demand situations – providing a cost incentive for prosumers to actively contribute their excess energy.

WHAT IS DEMAND RESPONSE?

Electricity users are often far removed from the grid they use – flick the switch and the light turns on without another thought. Demand response gives consumers the opportunity to be more involved in the grid by reducing the amount of power they are using when demand is at its highest. Reducing power consumption in a demand response setting is often price incentivized by utility companies.

THE DELTA SOLUTION

DELTA proposes a demand response management platform that distributes part of the aggregator's intelligence into lower layers of its architecture, in order to establish a more easily manageable and computationally efficient demand response solution. This approach aims to introduce scalability and adaptiveness into the aggregator's DR toolkits; the DELTA core engine will be able to adopt and integrate multiple strategies and policies provided from its administrative stakeholders, making it an authentic, modular and future-proof solution.

WHAT IS THE END RESULT?

- Empowering prosumers to contribute to the power grid
- Giving aggregators the tools needed to efficiently manage their portfolios
- Bringing more renewable energy sources into the power grid
- A more balanced and cost-friendly grid for the consumer

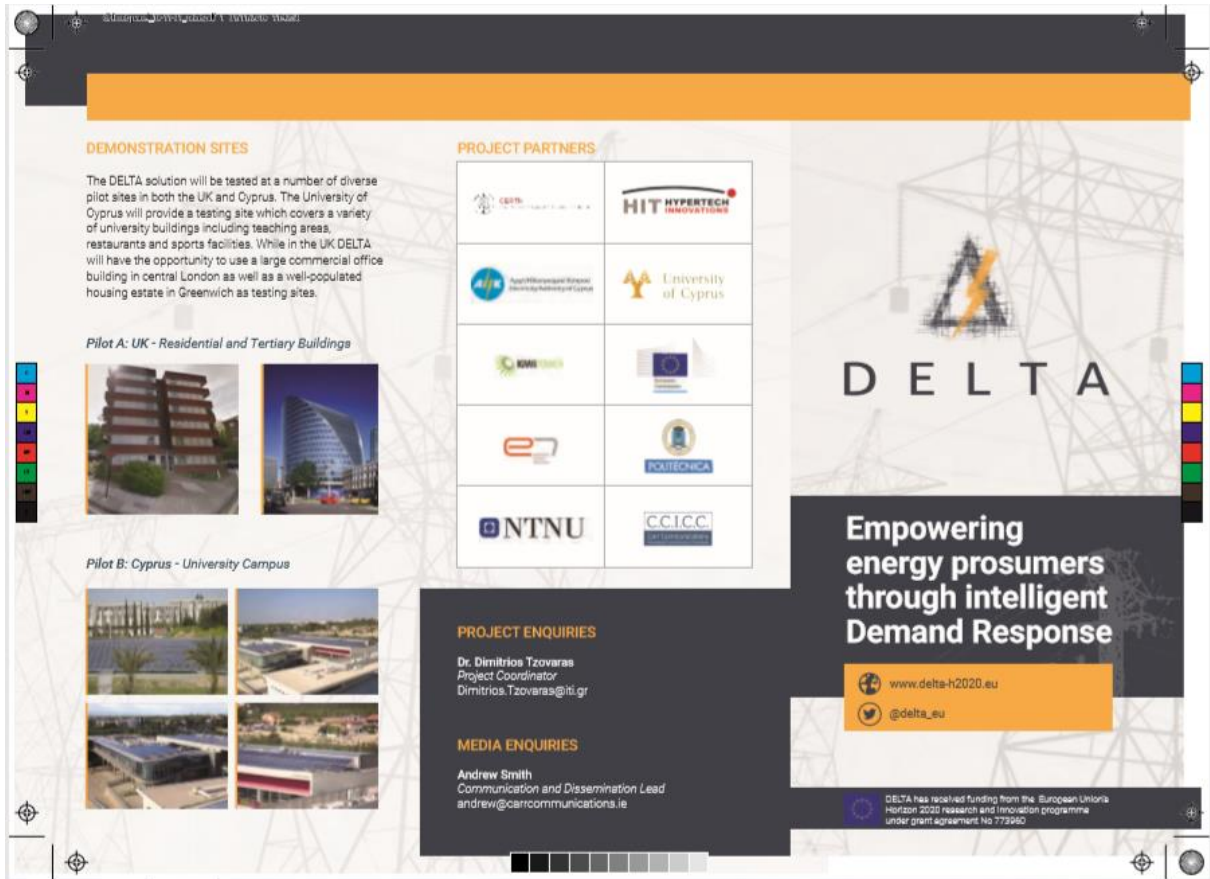
THE DELTA ICT FRAMEWORK

The DELTA Virtual Node
One of the project's main innovations is the DELTA Virtual Node (DVN). The DVN is a cluster of customers (small to medium consumers, producers or prosumers) which share key common characteristics in terms of consumption, generation and available flexibility amongst others. The DVN will transform clusters of small to medium scale consumers, producers and prosumers into entities which can present much larger capacities for delivering DR services to the aggregator. Additionally, blockchain technology will be utilised in the Virtual Nodes to facilitate smart contracts between aggregators and prosumers, reducing costs and providing for an automated and trustworthy mechanism of data exchange. Blockchain technologies will be extended outside of the Virtual Nodes for transparent information exchange between aggregators and grid operators.

DELTA Fog-Enabled Intelligent Device
Under the framework established by the DVN each customer will be equipped with a fog enabled intelligent device (FEID) which will gather and monitor energy related data from field devices, such as home appliances, distributed energy resources, storage components etc. The DELTA FEID will allow for real-time reporting of a prosumer's flexibility to the DELTA Nodes, while also being able to receive DR requests and distribute them to the facility's equipment, for example a solar panel or wind turbine. Security of the energy information exchange will be ensured by using blockchain-based technology and smart contracts.

The diagram illustrates the DELTA ICT Framework. At the top, 'RETAIL CUSTOMERS' and 'INDUSTRIAL CUSTOMERS' are shown with arrows pointing to a central 'GRID' represented by a power line tower. Below the grid, an 'ENERGY PROVIDER' (lightning bolt icon) and an 'AGGREGATOR' (scales icon) are connected to the grid. The aggregator is also connected to two 'DELTA VIRTUAL NODE' boxes. The first box, labeled 'Residential Users', contains four 'FEID' (Fog-Enabled Intelligent Device) icons. The second box, labeled 'Commercial Users', also contains four 'FEID' icons. Arrows indicate a flow of information and energy between these components.


ANNEX C: DELTA Leaflet Front and Back Panels




DEMONSTRATION SITES

The DELTA solution will be tested at a number of diverse pilot sites in both the UK and Cyprus. The University of Cyprus will provide a testing site which covers a variety of university buildings including teaching areas, restaurants and sports facilities. While in the UK DELTA will have the opportunity to use a large commercial office building in central London as well as a well-populated housing estate in Greenwich as testing sites.











Pilot A: UK - Residential and Tertiary Buildings



Pilot B: Cyprus - University Campus



PROJECT PARTNERS

PROJECT ENQUIRIES

Dr. Dimitrios Tzovaras
Project Coordinator
Dimitrios.Tzovaras@iti.gr

MEDIA ENQUIRIES

Andrew Smith
Communication and Dissemination Lead
andrew@carcomcommunications.ie

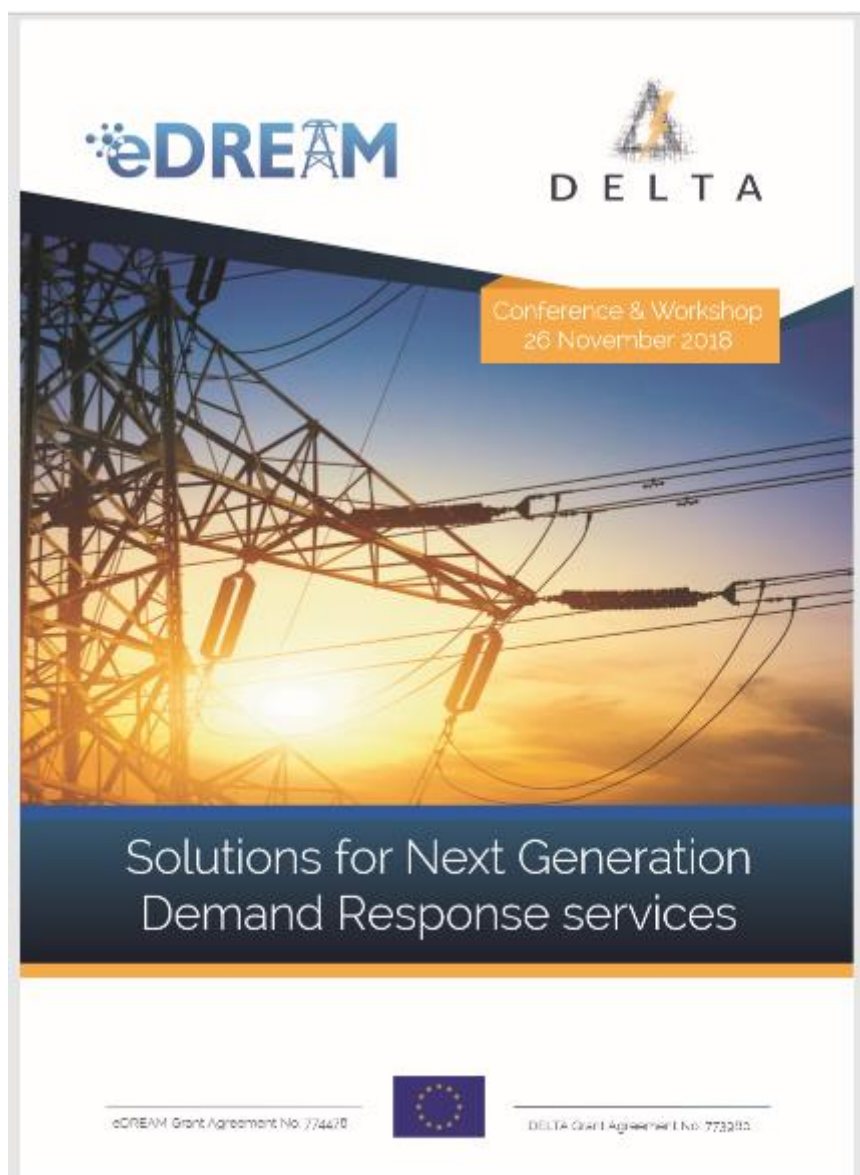
DELTA

Empowering energy prosumers through intelligent Demand Response

www.delta-h2020.eu
[@delta_eu](https://twitter.com/delta_eu)

DELTA has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 773960

ANNEX D: DELTA/eDREAM Workshop Leaflet (cover page)



ANNEX E: EU and International Bodies for Dissemination

A	
1	EU and International Interest Groups
2	· Smart Energy Europe
3	· European Association for Electrical Contractors
4	· Home Appliance Europe
5	· Cogen Europe
6	· European Heating Industry
7	· European Heat Pump Association
8	· ESMIG
9	· Open Smart Grid Protocol Alliance
10	· T&D Europe
11	· Wind Europe
12	· European Consumer Organisation (BEUC)
13	· IRENA
14	· REScoop
15	· IEA
16	· Solar Power Europe
17	· European Renewable Energy Research Centres Agency
18	· European Association for Renewable Energies
19	· European Energy Network
20	· European Distribution System Operators' Association for Smart Grids
21	· European Network of Transmission System Operators for Electricity
22	· Smart Homes & Buildings Association
23	· European Blockchain Association
24	· Energy Cities
25	· International Blockchain Federation
26	· Applia
27	· European Wind Energy Association
28	· The Association of European Renewable Energy Research Centres
29	· European Future Energy Forum
30	· REN21
31	· European Renewable Energies Foundation
32	· International Facility Management Association Europe
33	· Energy Networks Association (UK and Ireland)
34	· Florence School of Regulation
35	· Renewables Grid Initiative
36	
37	Country Specific Regulators
38	· Ireland (Commission for Regulation of Utilities)
39	· UK (Ofgem)
40	· Greece (Regulatory Authority for Energy)
41	· Cyprus (Cyprus Energy Regulatory Authority)
42	· Norway (Norwegian Energy Regulatory Authority)
43	· Spain (National Energy Commission)
44	· Austria (E-Control)
45	· EU-wide (Council of European Energy Regulators)
46	Policy
47	· DG Energy
48	· The Commissioner for Climate Action and Energy Union
49	· Smart Grid Task Force (DG Energy)
50	· EU Blockchain Observatory and Forum

ANNEX F: Dissemination Report 1



DELTA

Dissemination Activities Report

The dissemination activities report should be filled in by the lead partner of every finished dissemination activity related to the DELTA project.

The purpose of this report is to provide the necessary information to the WP8 leader for using the provided material for website announcements and other dissemination purposes, keeping track of project dissemination activities as well as for properly reporting to the European Commission.

For events or other dissemination activities		
<ul style="list-style-type: none"> Event title Place Date 	<ul style="list-style-type: none"> 2018 International Conference on Innovations in Intelligent Systems and Applications (sponsored by the Institute of Electrical and Electronics Engineers) – INISTA 2018 Thessaloniki, Greece 3rd - 5th July 2018 	
Brief description of proceedings	<p>Three-day conference on multi-disciplinary systems. Special sessions across the course of the conference included: Reasoning-based Intelligent Systems, Enabling Blockchain technologies for Intelligent Systems and Machine Learning: Methodologies, Applications and Trends.</p> <p>DELTA was presented on day 2 of the conference within the session on enabling blockchain technologies.</p>	
Involved partners <i>i.e. who attended, presented etc.</i>	<p>CERTH</p> <ul style="list-style-type: none"> Dr Dimos Ioannidis Dr Dimitrios Tzovaras 	
Reason the event was chosen	An important gathering of key stakeholders in the engineering field, and an early opportunity to highlight DELTA's objectives.	
Relevance of this event to DELTA	Specific interest in the special session relating to blockchain technologies.	
Type of audience	Scientific, Research and/or Technical community (higher education, research)	<input checked="" type="checkbox"/>
	SME	<input type="checkbox"/>
	Industry	<input checked="" type="checkbox"/>
	Policy makers / Policy Influencers	<input type="checkbox"/>
	Civil society/ Communities of interest	<input type="checkbox"/>

	Media	<input type="checkbox"/>
	Other – please define:	
Size of audience at the event	200+	
What feedback (if any) was received? Was it incorporated into the project?		
For articles in publications (journals / magazines)		
Lead Partner (name, organisation)	N/A	
Title of publication:	N/A	
Authors:	N/A	
Title of journal or magazine:	N/A	
Volume, page:	N/A	
Editor / Publisher:	N/A	
Date of publication:	N/A	
URL (if available)	N/A	
ISSN / ISBN (if a book or chapter)	N/A	
DOI number	N/A	
Open access to publication?	<input type="checkbox"/> no <input type="checkbox"/> yes If yes - provide link to access it:	
Additional info:	N/A	
For all dissemination activities		
Full paper/article/poster or presentation	Attached to this form	<input type="checkbox"/>
	Emailed separately	<input checked="" type="checkbox"/>
Short description for project website:	<p>Dr Dimosthenis Ioannidis of CERTH presented the DELTA framework and associated blockchain elements of the project to the delegates in attendance. The potential scope and innovation of DELTA was well received. Dr Ioannidis covered a number of features of DELTA, including:</p> <ul style="list-style-type: none"> • The DELTA Virtual Node to assist energy aggregators. • The DELTA Fog-Enabled Intelligent Device which will empower consumers, producers and prosumers. • How the blockchain can exploit benefits of smart contracts, including reducing transaction costs and enable autonomous 	

	contracting in the energy market.	
Pictures from the event	Attached to this form	<input type="checkbox"/>
	Emailed separately	<input checked="" type="checkbox"/>
Permission to publish the material on the DELTA website	Yes	<input checked="" type="checkbox"/>
	No	<input type="checkbox"/>
Other Comments:		

ANNEX G: Dissemination Report 2



DELTA

Dissemination Activities Report

The dissemination activities report should be filled in by the lead partner of every finished dissemination activity related to the DELTA project.

The purpose of this report is to provide the necessary information to the WP8 leader for using the provided material for website announcements and other dissemination purposes, keeping track of project dissemination activities as well as for properly reporting to the European Commission.

For events or other dissemination activities		
<ul style="list-style-type: none"> Event title Place Date 	<ul style="list-style-type: none"> European Networking Workshop on Energy Systems Rome, Italy 5th July 2018 	
Brief description of proceedings	<p>Workshop organised by the Italian Agency for the Promotion of European Research (APRE).</p> <p>DELTA was presented by Dr Ioannidis of CERTH, specifically on improving synergies in the European smart-grid ecosystem.</p>	
Involved partners <i>i.e who attended, presented etc.</i>	<p>CERTH</p> <ul style="list-style-type: none"> Dr Dimos Ioannidis 	
Reason the event was chosen	Good exposure to other research projects within the energy systems domain.	
Relevance of this event to DELTA	Possible identification of future synergies/collaborations with relevant projects/initiatives involved in energy systems.	
Type of audience	Scientific, Research and/or Technical community (higher education, research)	<input checked="" type="checkbox"/>
	SME	<input checked="" type="checkbox"/>
	Industry	<input checked="" type="checkbox"/>
	Policy makers / Policy Influencers	<input type="checkbox"/>
	Civil society/ Communities of interest	<input type="checkbox"/>
	Media	<input type="checkbox"/>

	Other – please define:	
Size of audience at the event	50+	
What feedback (if any) was received? Was it incorporated into the project?		
For articles in publications (journals / magazines)		
Lead Partner (name, organisation)	N/A	
Title of publication:	N/A	
Authors:	N/A	
Title of journal or magazine:	N/A	
Volume, page:	N/A	
Editor / Publisher:	N/A	
Date of publication:	N/A	
URL (if available)	N/A	
ISSN / ISBN (if a book or chapter)	N/A	
DOI number	N/A	
Open access to publication?	<input type="checkbox"/> no <input type="checkbox"/> yes If yes - provide link to access it:	
Additional info:	N/A	
For all dissemination activities		
Full paper/article/poster or presentation	Attached to this form	<input type="checkbox"/>
	Emailed separately	<input type="checkbox"/>
Short description for project website:	Dr Ioannidis presented the project in Rome at the European Networking Workshop on Energy Systems on July 5. The workshop was organised by the Italian Agency for the Promotion of European Research (APRE). The event aimed at bringing together academia, companies and research centres to boost the creation of project consortia. Dr Ioannidis presented DELTA, and how it is seeking to improve synergies in the smart grid ecosystem.	
Pictures from the event	Attached to this form	<input type="checkbox"/>
	Emailed separately	<input type="checkbox"/>

Permission to publish the material on the DELTA website	Yes	<input checked="checked" type="checkbox"/>
	No	<input type="checkbox"/>
Other Comments:		

ANNEX H: Dissemination Report 3



DELTA

Dissemination Activities Report

The dissemination activities report should be filled in by the lead partner of every finished dissemination activity related to the DELTA project.

The purpose of this report is to provide the necessary information to the WP8 leader for using the provided material for website announcements and other dissemination purposes, keeping track of project dissemination activities as well as for properly reporting to the European Commission.

For events or other dissemination activities		
<ul style="list-style-type: none"> Event title Place Date 	<ul style="list-style-type: none"> INEA Low TRL Smart Grids and Storage Projects Clustering Brussels, Belgium 2nd October 2018 	
Brief description of proceedings	<p>Networking meeting for low TRL H2020 projects under the INEA smart grids and storage cluster.</p> <p>The overall aims, objectives and methodology of DELTA was presented by Dr Ioannidis of CERTH.</p>	
Involved partners <i>i.e who attended, presented etc.</i>	<p>CERTH</p> <ul style="list-style-type: none"> Dr Dimos Ioannidis 	
Reason the event was chosen	Invited to attend and present as a result of DELTA's low TRL status and involvement with smart grid innovation.	
Relevance of this event to DELTA	Networking opportunity with similar projects to foster future collaboration.	
Type of audience	Scientific, Research and/or Technical community (higher education, research)	<input checked="" type="checkbox"/>
	SME	<input checked="" type="checkbox"/>
	Industry	<input checked="" type="checkbox"/>
	Policy makers / Policy Influencers	<input type="checkbox"/>
	Civil society/ Communities of interest	<input type="checkbox"/>
	Media	<input type="checkbox"/>

	Other – please define:	
Size of audience at the event	70+	
What feedback (if any) was received? Was it incorporated into the project?		
For articles in publications (journals / magazines)		
Lead Partner (name, organisation)	N/A	
Title of publication:	N/A	
Authors:	N/A	
Title of journal or magazine:	N/A	
Volume, page:	N/A	
Editor / Publisher:	N/A	
Date of publication:	N/A	
URL (if available)	N/A	
ISSN / ISBN (if a book or chapter)	N/A	
DOI number	N/A	
Open access to publication?	<input type="checkbox"/> no <input type="checkbox"/> yes If yes - provide link to access it:	
Additional info:	N/A	
For all dissemination activities		
Full paper/article/poster or presentation	Attached to this form	<input type="checkbox"/>
	Emailed separately	<input type="checkbox"/>
Short description for project website:	N/A. Twitter post: https://twitter.com/delta_eu/status/1047113084152758272	
Pictures from the event	Attached to this form	<input type="checkbox"/>
	Emailed separately	<input checked="" type="checkbox"/>
Permission to publish the material on the DELTA website	Yes	<input type="checkbox"/>
	No	<input type="checkbox"/>
Other Comments:	<ul style="list-style-type: none"> • Future collaboration with eDREAM project discussed. • DELTA to take lead on demand response interoperability within 	

	this cluster.
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ANNEX I: Dissemination Report 4



DELTA

Dissemination Activities Report

The dissemination activities report should be filled in by the lead partner of every finished dissemination activity related to the DELTA project.

The purpose of this report is to provide the necessary information to the WP8 leader for using the provided material for website announcements and other dissemination purposes, keeping track of project dissemination activities as well as for properly reporting to the European Commission.

For events or other dissemination activities	
<ul style="list-style-type: none"> • Event title • Place • Date 	<ul style="list-style-type: none"> • European Utility Week 2018 • Vienna, Austria • 5th – 8th November 2018
Brief description of proceedings	<p>Europe's leading energy and utility event, the expo brings together industry, research and policy to network and discuss strategies for the energy transition.</p> <p>DELTA occupied a stand in the EU projects zone where the project was also presented to interested stakeholders. Media coverage was secured including online articles and video interviews.</p> <p>High level of networking with DSOs, TSOs, media, academic institutions and other industry representatives. This included the completion of questionnaires to assist DELTA's work for D1.1.</p>
Involved partners <i>i.e who attended, presented etc.</i>	<p>CERTH</p> <ul style="list-style-type: none"> • Dr Dimitrios Tzovaras • Dr Stelios Krinidis <p>CARR</p> <ul style="list-style-type: none"> • Andrew Smith <p>E7</p> <ul style="list-style-type: none"> • Christof Amman
Reason the event was chosen	Invited to attend and have a stand within the EU projects zone.
Relevance of this event to DELTA	Exposure to multiple stakeholder categories as well as huge opportunity for networking and media exposure.

Type of audience	Scientific, Research and/or Technical community (higher education, research)	<input checked="" type="checkbox"/>
	SME	<input checked="" type="checkbox"/>
	Industry	<input checked="" type="checkbox"/>
	Policy makers / Policy Influencers	<input checked="" type="checkbox"/>
	Civil society/ Communities of interest	<input checked="" type="checkbox"/>
	Media	<input checked="" type="checkbox"/>
	Other – please define:	
Size of audience at the event	12,000+	
What feedback (if any) was received? Was it incorporated into the project?	10 questionnaires from a range of stakeholder groups including aggregators and research institutions were completed and incorporated into D1.1.	
For articles in publications (journals / magazines)		
Lead Partner (name, organisation)	N/A	
Title of publication:	N/A	
Authors:	N/A	
Title of journal or magazine:	N/A	
Volume, page:	N/A	
Editor / Publisher:	N/A	
Date of publication:	N/A	
URL (if available)	N/A	
ISSN / ISBN (if a book or chapter)	N/A	
DOI number	N/A	
Open access to publication?	<input type="checkbox"/> no <input type="checkbox"/> yes If yes - provide link to access it:	
Additional info:	N/A	
For all dissemination activities		
Full paper/article/poster	Attached to this form	<input type="checkbox"/>
	Emailed separately	<input checked="" type="checkbox"/>

or presentation		
Short description for project website:	<p>DELTA was one of only 24 EU-funded projects to appear in the EU projects zone of the exhibition. The EU projects zone would serve as a hub for innovation and networking throughout the exhibition. With all of the projects at various stages of progress, the area attracted a host of interested stakeholders; investors eyeing new innovations and academics and SMEs looking to network and collaborate.</p> <p>https://www.delta-h2020.eu/news/european-utility-week-2018/</p>	
Pictures from the event	Attached to this form	<input type="checkbox"/>
	Emailed separately	<input checked="" type="checkbox"/>
Permission to publish the material on the DELTA website	Yes	<input checked="" type="checkbox"/>
	No	<input type="checkbox"/>
Other Comments:	<ul style="list-style-type: none"> Resulted in media partnership with Smart Energy International for feature in a 2019 print edition 	

ANNEX J: Dissemination Report 5



DELTA

Dissemination Activities Report

The dissemination activities report should be filled in by the lead partner of every finished dissemination activity related to the DELTA project.

The purpose of this report is to provide the necessary information to the WP8 leader for using the provided material for website announcements and other dissemination purposes, keeping track of project dissemination activities as well as for properly reporting to the European Commission.

For events or other dissemination activities		
<ul style="list-style-type: none"> Event title Place Date 	<ul style="list-style-type: none"> Innovation and Networking Days 2018 (LINKS Foundation, ISMB and Fraunhofer Institute for Applied Information Technology) Torino, Italy 21st - 22nd November 2018 	
Brief description of proceedings	<p>The Innovation and Networking Days allow Innovators from industry, research and public administrations to meet, share, network and discuss different elements of a chosen topic. For 2018, the topic was, “How Information and Communication Technologies can support environmental sustainability of production, products and services”</p> <p>DELTA was presented by Dr Ioannidis on the theme of prosumer collaboration schemes and awards in demand response programs.</p>	
Involved partners <i>i.e who attended, presented etc.</i>	CERTH <ul style="list-style-type: none"> Dr Dimos Ioannidis 	
Reason the event was chosen	Invited to attend given upcoming DELTA work on gamification and award schemes in demand response settings.	
Relevance of this event to DELTA	Networking and dissemination opportunity to specifically discuss our innovations in award schemes for prosumers.	
Type of audience	Scientific, Research and/or Technical community (higher education, research)	<input checked="" type="checkbox"/>
	SME	<input type="checkbox"/>
	Industry	<input checked="" type="checkbox"/>
	Policy makers / Policy Influencers	<input checked="" type="checkbox"/>

	Civil society/ Communities of interest	<input type="checkbox"/>
	Media	<input type="checkbox"/>
	Other – please define:	
Size of audience at the event	50+	
What feedback (if any) was received? Was it incorporated into the project?		
For articles in publications (journals / magazines)		
Lead Partner (name, organisation)	N/A	
Title of publication:	N/A	
Authors:	N/A	
Title of journal or magazine:	N/A	
Volume, page:	N/A	
Editor / Publisher:	N/A	
Date of publication:	N/A	
URL (if available)	N/A	
ISSN / ISBN (if a book or chapter)	N/A	
DOI number	N/A	
Open access to publication?	<input type="checkbox"/> no <input type="checkbox"/> yes If yes - provide link to access it:	
Additional info:	N/A	
For all dissemination activities		
Full paper/article/poster or presentation	Attached to this form	<input type="checkbox"/>
	Emailed separately	<input type="checkbox"/>
Short description for project website:	N/A. https://twitter.com/LinksFoundation/status/1065569284607356928	
Pictures from the event	Attached to this form	<input type="checkbox"/>
	Emailed separately	<input type="checkbox"/>

Permission to publish the material on the DELTA website	Yes	<input type="checkbox"/>
	No	<input checked="" type="checkbox"/>
Other Comments:		

ANNEX K: Dissemination Report 6



DELTA

Dissemination Activities Report

The dissemination activities report should be filled in by the lead partner of every finished dissemination activity related to the DELTA project.

The purpose of this report is to provide the necessary information to the WP8 leader for using the provided material for website announcements and other dissemination purposes, keeping track of project dissemination activities as well as for properly reporting to the European Commission.

For events or other dissemination activities		
<ul style="list-style-type: none"> Event title Place Date 	CENELEC Mapping Ontologies workshop CCMC (Brussels) 27 th November 2018	
Brief description of proceedings <i>i.e. talks/seminars etc. attended</i>	Welcome by Cinzia Missiroli: Importance of interoperability and SAREF. Svetoslav Mihaylov: Digital Single Market Interoperability and Standards ontologies and platforms. Laurent Guise : SGAM- Smart Grid Architecture Model. CEN-CLC current protocols, data models and ontologies Joost Demarest: CLC/TC 205 M. Buss: CEN/TC 294	
Involved partners <i>i.e. who attended, presented etc.</i>	María Poveda Villalón (UPM)	
Reason the event was chosen	Relation with SAREF4ENERGY and energy related models.	
Relevance of this event to DELTA	A number of discussions about SAREF4ENERGY and other models to cover broader aspects of energy modelling took place.	
Type of audience	Scientific, Research and/or Technical community (higher education, research)	<input checked="" type="checkbox"/>
	SME	<input checked="" type="checkbox"/>
	Industry	<input checked="" type="checkbox"/>
	Policy makers / Policy Influencers	<input checked="" type="checkbox"/>
	Civil society/ Communities of interest	<input type="checkbox"/>
	Media	<input type="checkbox"/>

	Other – please define:	
Size of audience at the event	30+	
What feedback (if any) was received? Was it incorporated into the project?		
For articles in publications (journals / magazines)		
Lead Partner (name, organisation)	N/A	
Title of publication:	N/A	
Authors:	N/A	
Title of journal or magazine:	N/A	
Volume, page:	N/A	
Editor / Publisher:	N/A	
Date of publication:	N/A	
URL (if available)	N/A	
ISSN / ISBN (if a book or chapter)	N/A	
DOI number	N/A	
Open access to publication?	<input type="checkbox"/> no <input type="checkbox"/> yes If yes - provide link to access it:	
Additional info:	N/A	
For all dissemination activities		
Full paper/article/poster or presentation	Attached to this form	<input type="checkbox"/>
	Emailed separately	<input type="checkbox"/>
Short description for project website:	<p>SAREF is defined as a shared model of consensus that facilitates the matching of existing assets (standards, protocols, data models) initially in the smart appliances domain. Overall, SAREF's objective is to link the information coming from different smart appliances, based on different standards, to reach interoperability.</p> <p>Considering the relevance of the extension to SAREF in the energy domains, and following the discussions on this topic in the CEN-CENELEC-ETSI Coordination Group on Smart Energy Grids (CG-SEG) and CEN-CENELEC-ETSI Coordination Group on Smart Meters (CG-SM), it became clear the need to ensure a single point of reference in Europe.</p>	

	As a first step, the Coordination Groups on Smart Energy Grids and Smart Meters organised the *‘‘CEN-CENELEC Mapping Ontologies workshop’’* that took place on *27 November 2018 at CCMC (Brussels)*, aiming at mapping the existing data models and to work towards their alignment.	
Pictures from the event	Attached to this form	<input checked="" type="checkbox"/>
	Emailed separately	<input type="checkbox"/>
Permission to publish the material on the DELTA website	Yes	<input type="checkbox"/>
	No	<input type="checkbox"/>
Other Comments:		

ANNEX L: European Utility Week Press Release



Press Release

EMBARGO: 00:01 November 5th 2018

People Power

Experts Develop New Blockchain Technology to Give Consumers More Control over their Energy Usage

- DELTA experts are developing new technology to give prosumers (those who produce and consume electricity) more control over their energy usage
- The EU-funded DELTA technology will also give aggregators (energy brokers who work to get the best deal for a group of consumers) the tools to manage their business more effectively
- Europe makes up the world's third largest electricity market, meaning innovative ways to ensure our electricity supply is secure, smart, integrated and reliable are needed
- The DELTA project will be exhibiting at [European Utility Week 2018 in Vienna, Austria](#)

Monday, November 5th 2018

DELTA, a European Union research and innovation project, will be showcasing their main technology breakthroughs at European Utility Week taking place in Vienna from November 6th – 8th.

One of only 24 EU funded projects to be invited to exhibit at the European Projects Zone at European Utility Week 2018, DELTA is developing a new IT system to increase participation in demand response around Europe for both commercial and residential prosumers and consumers.

Speaking prior to European Utility Week 2018 Dr Dimitrios Tzovaras, project coordinator and research director with the Information Technologies Institute at CERTH, had this to say:

“The untapped potential of demand response around Europe is huge, and it will become increasingly important and valuable as Europe continues to see extreme weather conditions as a result of climate change.

“These weather events push our electricity grids to the limit, leaving imbalances which demand response can help to alleviate. Making it easier for aggregators to manage their portfolios of prosumers and consumers is a key step in unleashing the demand response potential around Europe and one of DELTA’s key goals.

“Europe makes up the world’s third largest electricity market therefore we need to find innovative ways to ensure our electricity supply is secure, smart, integrated and reliable. Our research will develop a next generation demand response framework for every consumer of electricity, regardless of size and empower them to actively engage in everyday energy transactions by providing aggregators with the necessary tools.”

The BEUC, the European Consumer Organisation, has recently called for the entry of independent aggregators into the market to be made easier, as long as they respect all the obligations that electricity suppliers have. DELTA believes by offering innovative, scalable and efficient technologies in the demand response sector, such as the DELTA Virtual Node (DVN) and Fog-Enabled Intelligent Device (FEID), aggregators can be equipped with the resources to effectively enter and contribute to the energy market.

DELTA's innovations are powered by blockchain, ensuring transparency and traceability for data collection and storage as well as providing options for smart contracts to further improve efficiency in residential and consumer energy transactions.

For more information on DELTA visit our website www.delta-h2020.eu

ENDS

DELTA will be exhibiting at European Utility Week 2018 in the European Projects Zone at stand B.k49.i2. European Utility Week 2018 is taking place in the Messe Wien Exhibition and Conference Center, Vienna.

High resolution images are available by request

Dr Dimitrios Tzovaras (Project coordinator) and Stelios Krinidis are available for interview. To arrange please contact:

Andrew Smith, Carr Communications on 00353 (87) 643 7693 or email andrew@carrcommunications.ie

NOTES TO THE EDITOR: **About DELTA**

DELTA has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 773960. The DELTA consortium is made up of 10 partners from 8 countries in the EU. It is led by CERTH, a leading European research organisation who have significant expertise in the ICT and Energy domains. The consortium also includes four dynamic SMEs from across Europe as well as key players in the electricity market and other academic and research partners. Guided by market analysis, the DELTA consortium will introduce an extra layer to the existing energy network structure that will utilise ICT and human ingenuity to bring a rapid revolution in the development and application of intelligent, self-sustainable, bi-directional, stable and secure DR programs in Europe.

It will do so by developing innovative tools for customers engagement and empowerment, advanced forecasting engines for better scheduling and management of available resources, and energy portfolio segmentation. All this will be done to deliver a more DR-enabled energy portfolio that will have full access to available flexibility leading to higher integration capacity of intermittent renewable power and significant progress in the decarbonisation of EU energy markets. Furthermore, the DELTA framework will be open, realistic and interoperable delivering enhanced grid security, reliable power, high quality of supply and automated stability control. The implementation of the DELTA solution will also facilitate the introduction of new market players to highly competitive energy markets.

What is demand response? (DR)

Demand response gives consumers the opportunity to be more involved in the grid by reducing the amount of power they are using when demand is at its highest. Reducing power consumption in a demand response setting is often price incentivized by utility companies.

What is a prosumer?

With renewable energy technology becoming cheaper and more readily available, the rise of the prosumer is upon us. Someone who both consumes and produces energy can be categorised as a prosumer – for example a household which installs a solar panel or a factory which constructs a wind turbine. Smart and efficient technology are central to prosumers being active players in the energy market, especially when community energy schemes and small to medium sized enterprises are aggregated together in order to better contribute to the energy grid.

What is an aggregator?

An aggregator seeks to group consumers or prosumers together in order to respond effectively to demand on the grid and also get the best deal for the consumers/prosumers in their portfolio. This is done by changing usage patterns, for example decreasing consumption when demand is at its highest or increasing consumption when prices are good. An aggregator shares the savings generated through this flexibility response with their customers. Currently, aggregators work with larger commercial customers however the DELTA tools will allow aggregators to work with small to medium scale prosumers and consumers, including at residential level, to unlock the demand response potential around Europe.

The DELTA Virtual Node

One of the project's main innovations is the DELTA Virtual Node (DVN). The DVN is a cluster of customers (small to medium consumers, producers or prosumers) which share key common characteristics in terms of consumption, generation and available flexibility amongst others. The DVN will transform clusters of small to medium scale consumers, producers and prosumers into entities which can present much larger capacities for delivering DR services to the aggregator. Additionally, blockchain technology will be utilised in the Virtual Nodes to facilitate smart contracts between aggregators and prosumers, reducing costs and providing for an automated and trustworthy mechanism of data exchange. Blockchain technologies will be extended outside of the Virtual Nodes for transparent information exchange between aggregators and grid operators

Fog-Enabled Intelligent Device

Under the framework established by the DVN each customer will be equipped with a fog enabled intelligent device (FEID) which will gather and monitor energy related data from field devices, such as home appliances, distributed energy resources, storage components etc. The DELTA FEID will allow for real-time reporting of a prosumer's flexibility to the DELTA Nodes, while also being able to receive DR requests and distribute them to the facility's equipment, for example a solar panel or wind turbine. Security of the energy information exchange will be ensured by using blockchain-based technology and smart contracts.



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