



## **PLUG-N-HARVEST**

**Plug-n-play passive and active multi-modal energy  
Harvesting systems, circular economy by design, with  
high replicability for Self-sufficient Districts & Near-  
Zero Buildings**

*768735, H2020-EEB-2017*

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<b>Participating Partners:</b>	



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This report outlines the communication and dissemination activities of the PLUG-N-HARVEST project in its first year, from September 2017 to August 2018. It summarises progress and deliverables related to the project identity, online communication, internal communication and dissemination.

Finally, the report discusses reflection on the progress made in the first year of the project and defines upcoming priorities and tasks in the second year.

**Keywords: PLUG-N-HARVEST, dissemination, communication, website, social media, conferences, press, publications**

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## Table of Contents

<b>1</b>	<b>INTRODUCTION.....</b>	<b>1</b>
<b>2</b>	<b>STRATEGIC COMMUNICATION PLAN.....</b>	<b>2</b>
2.1	JUSTIFICATION OF THE OBJECTIVES.....	2
2.2	TARGET AUDIENCES.....	2
2.3	EXPECTED OUTCOMES.....	3
<b>3</b>	<b>PROJECT IDENTITY.....</b>	<b>5</b>
3.1	PROJECT LOGO.....	5
3.2	PROJECT TEMPLATES.....	5
<b>4</b>	<b>PROJECT WEBSITE.....</b>	<b>6</b>
4.1	WEBSITE STRATEGY.....	6
4.2	WEBSITE STRUCTURE.....	6
4.3	WEBSITE ANALYTICS.....	7
<b>5</b>	<b>SOCIAL MEDIA.....</b>	<b>9</b>
5.1	FACEBOOK.....	9
5.2	TWITTER.....	9
5.3	FUTURE DEVELOPMENT OF SOCIAL MEDIA.....	9
<b>6</b>	<b>NETWORK OF INTEREST.....</b>	<b>10</b>
6.1	CONTACT EMAIL.....	10
6.2	AUDIENCE.....	10
6.3	PROJECT FLYER, BROCHURE AND POSTER.....	10
<b>7</b>	<b>PUBLICATION ACTIVITIES.....</b>	<b>12</b>
7.1	JOURNAL AND CONFERENCE PUBLICATIONS.....	12
7.2	RELEVANT PHD, MGS OR BSC THESIS.....	12
7.3	EXTERNAL EVENTS AND PRESS RELEASES.....	13
<b>8</b>	<b>CONCLUSIONS AND NEXT STEPS.....</b>	<b>14</b>



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## List of Figures

<b>Figure 1. PLUG-N-HARVEST logo .....</b>	<b>5</b>
<b>Figure 2. PLUG-N-HARVEST's templates (deliverables and PowerPoint presentation) .....</b>	<b>5</b>
<b>Figure 3. PLUG-N-HARVEST website – Home page .....</b>	<b>6</b>
<b>Figure 4. Website visitors, new users.....</b>	<b>7</b>
<b>Figure 5. Website visitors, time periods per country.....</b>	<b>8</b>
<b>Figure 6. Users per hour .....</b>	<b>8</b>
<b>Figure 7. Screenshot of the Facebook page .....</b>	<b>9</b>
<b>Figure 8. Screenshot of the Twitter page.....</b>	<b>9</b>
<b>Figure 9. Project brochure .....</b>	<b>10</b>
<b>Figure 10. Project flyer.....</b>	<b>11</b>



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## List of Tables

<b>Table 1. Target groups .....</b>	<b>2</b>
<b>Table 2. Expected impact on key target audiences.....</b>	<b>3</b>
<b>Table 3. Website KPI's.....</b>	<b>7</b>
<b>Table 4. Website results .....</b>	<b>7</b>
<b>Table 5. Project promotional material .....</b>	<b>11</b>



## 1 Introduction

Based on a common understanding that energy harvesting and energy management systems are driving forces of sustainable societies around the world, the PLUG-N-HARVEST project aims to pave the way by promoting the establishment of more holistic and energy efficient methodologies for residential and commercial buildings, building blocks, districts, smart cities, etc. To pursue this goal, PLUG-N-HARVEST will develop, support and implement new active energy harvesting approaches by encompassing key enabling technologies, which enables optimal coordination of all different RES and storage systems both at the building and at the district level while being cost-effective.

Societal actors (researchers, citizens, policy makers, business, third sector organizations, etc.) work together during the whole research and innovation process in order to better align both the process and its outcomes with the values, needs and expectations of society. This mutual approach requires clear communication of relevant information, and a willingness to listen on both sides. Dissemination activities have addressed the target groups via different communication channels like press, online, multimedia, events, conferences and printed materials.

This report outlines the communication activities accomplished in the project's first year. The dissemination and communication work package is led by CERTH, following a dissemination roadmap and timeline for dissemination and communication tasks. The second section describes the PLUG-N-HARVEST overall communication plan, as well as the target audiences that will be addressed to. The section 3 is referring to the project identity created to ensure a consistent and professional communication. Project website is described in section 4, where its design and structure is presented, as well as with its visibility and recognizing-ability analysis. The next aspect, section 5 stands for the social media and newsletter presentation, when in section 6 the network of interest and the way to approach it in a better way is analyzed. In the last section, publication activities within journals, conferences, workshops etc. are displayed which will be used so as to commute project's methodologies and work among the scientific community and experienced stakeholders related to similar applications.



## 2 Strategic communication plan

Based on the goals and approach of the PLUG-N-HARVEST project, a strategic communication plan was developed to guide project communication and dissemination.

### 2.1 Justification of the objectives

The PLUG-N-HARVEST dissemination plans and promotion objectives are:

- To promote EU research and innovation in energy management and energy harvesting sector, and beyond;
- To show a refurbishment solution that consists of an energetic improvement of the building envelope and the use of efficient technical equipment, while requiring short installation time and minimal intrusion into the interior space;
- To transform the industry, especially the built environment, to a circular economy providing specific solutions and examples of design and implementation;
- To preserve materials value by extending resource productivity and enabling its recovery at the end of its use cycle;
- To raise awareness about innovative approaches for optimal and cost-effective energy coordination of a building or district;
- To influence the attitudes of decision-makers towards a stronger support to European energy management;
- To develop new business opportunities and increase competitiveness of European building and energy agents in the circular economy context.
- To support PLUG-N-HARVEST activities and findings, making the results developed through the project available to the widest audience and enhancing the exploitation potential.

### 2.2 Target Audiences

The six main identified target groups are listed in the following table:

**Table 1. Target groups**

CATEGORIES	EXAMPLES OF MAIN STAKEHOLDERS
<b>Industry decision-makers</b>	<ul style="list-style-type: none"> <li>- High-level representatives of energy management companies</li> <li>- Planning offices (architecture and building technology)</li> <li>- Building and Facility Management Companies</li> <li>- Manufacturer/Distributors of components</li> <li>- ESCOs / CESCOs (Circular ESCOs)</li> </ul>
<b>Research communities</b>	<ul style="list-style-type: none"> <li>- Scientific community of Buildings/Facilities</li> <li>- EU Institutions (EC, European Science Foundation)</li> </ul>
<b>Policy-makers and facilitators</b>	<ul style="list-style-type: none"> <li>- National public authorities (industrial committees, national regulation authorities, ministry and regional councils)</li> </ul>

	- Energy Associations - Public Bodies - Environmental Organizations and NGOs
<b>Pilot sites</b>	- Building Occupants - Building Owners
<b>Related initiatives</b>	- Related EU-funded projects
<b>EU citizens</b>	- Individuals

### 2.3 Expected Outcomes

The dissemination plan and promotion is carefully designed to address the identified target groups in the most effective way. The expected outcomes of PLUG-N-HARVEST's communication include:

- a large number of stakeholders being more aware of ideas and technologies for the building infrastructure and energy management future of Europe;
- a large number of stakeholders being aware of the benefits of circular economy integrated in building design (modularity, upgradability, value recovery, etc.)
- scientists, researchers and manufacturers convinced that they should pay a special attention to boost new energy management and generation projects based in innovative business models;
- if possible, economic and policy decision-makers encouraged in supporting the circular economy and employment in Europe by promoting novel energy technologies that enable the creation of new business opportunities for other stakeholders (remanufacture, maintenance, CESCOs) for construction sector;
- lastly, and above all, a broad dissemination of new, disruptive ideas, concepts and solutions for the enhancement of building energy management and modular construction systems.

PLUG-N-HARVEST key target audience and the expected impact of communication and dissemination activities are listed in the following table.

**Table 2. Expected impact on key target audiences**

<b>Expected Impact</b>	<b>Industry decision-makers</b>	<b>Research communities</b>	<b>Policy-makers and facilitators</b>	<b>Pilot sites</b>	<b>Related initiatives</b>	<b>EU citizens</b>
Will be more aware of ideas and technologies for the building infrastructure and energy management future of Europe	√	√	√	√	√	√
Will help foster EU research and innovation on PLUG-N-	√	√	√		√	



HARVEST related technologies						
Will be convinced to pay a special attention to boost non-toxic material technological elements market size	√	√		√		
Will support novel circular economy (reusable) energy technologies for construction sector in Europe	√		√			
Will be directly affected by the outcomes of the research, and will provide feedback on project activities and results				√		
May adopt PLUG-N-HARVEST's technologies and solutions for improving building energy efficiency.	√	√				

### 3 Project identity

To ensure consistent and professional communication for the project, a PLUG-N-HARVEST corporate design handbook was developed.

#### 3.1 Project logo

A new distinctive logo was developed as an integral step in the project's overall presentation to external audiences, which is the first step for all dissemination and promotion activities.



Figure 1. PLUG-N-HARVEST logo

#### 3.2 Project templates

Following the definition of the project visual identity, project templates were developed at M3 to ensure that all documents produced by the project are sharing the same design and remain consistent with the project image during the entire project period. PLUG-N-HARVEST's set of templates includes templates for project Deliverables and PowerPoint presentations.



Figure 2. PLUG-N-HARVEST's templates (deliverables and PowerPoint presentation)

## 4 Project website

A project website (<http://www.plug-n-harvest.eu/>) was created at M3 and is a deliverable (D6.2.1) at M3. The PLUG-N-HARVEST website is constantly updated with the latest project news and will be continuously improved all along the project lifetime.

### 4.1 Website strategy

Initially online at M3 and constantly updated, the PLUG-N-HARVEST website (D6.2.1) contains all relevant information about the project and related topics (objectives, information, news, event announcements, public reports, analysis and links to related initiatives). The main objective of the website is to spread the project goals and results as widely as possible. PLUG-N-HARVEST's website development and maintenance is led by CERTH.

### 4.2 Website structure

The website is organized into six key areas: Home, About, Pilots, Consortium, News and Contact. They are described in detail in the following sub-sections on this chapter.

The website has been structured with the following functional elements:

- **Page header.** It is fixed to enable easy navigation. It is made up of the PLUG-N-HARVEST logo (left hand side) and a navigation menu (right hand side) containing direct links to all six key areas mentioned above.
- **Body of the site.** Depending on the page selected, it contains the information to be shared. Some pages will just display text and images. Others might be enabled with multimedia content, such as videos and animations. Others can act as document repositories, with download links. Some might even have internal navigation links.
- **Footer.** The very bottom of the page is devoted to permanent links to all social media accounts, to the mandatory dissemination reference to the EC, as well as to a sign-up form to PLUG-N-HARVEST newsletter (electronic newsletters focused on briefing the project, addressing the general scientific community but also the general public will be sent).

The website homepage was given special care as an entry point; it presents general information and allows users to navigate to more detailed info:

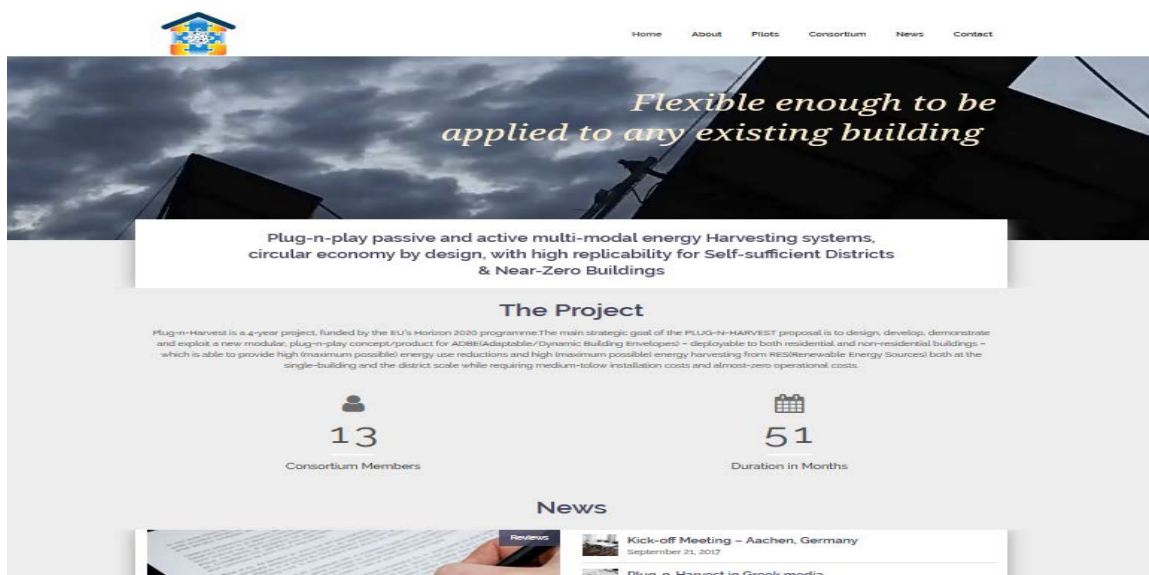


Figure 3. PLUG-N-HARVEST website – Home page

### 4.3 Website analytics

Close monitoring based on analytical tools – such as Google Analytics – and on-page and off-page Search Engine Optimization (SEO) will be used to improve the overall website’s efficiency. The website is expected rank among the Top 10/Top 3 Search Engine Results Page (SERP) using the following predefined key expressions: Plug-n-Harvest project; Plug-n-Harvest Horizon 2020.

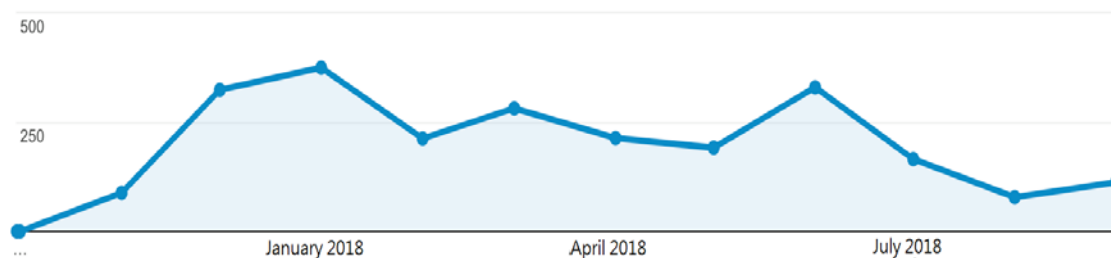
**Table 3. Website KPI’s**

	EXPECTED QUANTATIVE RESULTS		Results	
	At M6	At M12	At M6	At M12
Number of unique visitors	50	100	95	146
Minimum average visit duration	3’	3’	1.25’	2.13’
Position in SERPs on predefined key expressions	Top10	Top10	Top5	Top5

Metrics of the website attendance are shown below.

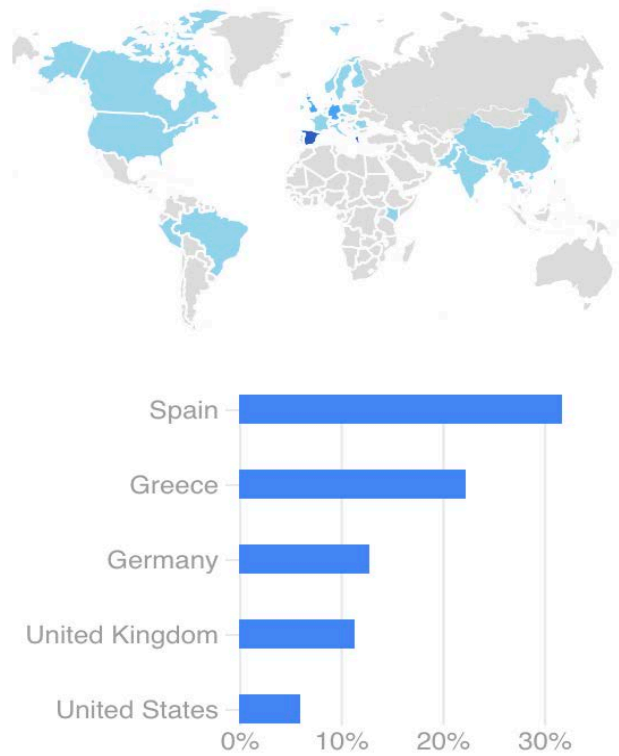
**Table 4. Website results**

Date	Session/month	Users/month	Page/visit	Average visit duration(mins)	% of visits from social networks
Jan 2018	43	96	1.35	1.45	14%
August 2018	108	146	2.08	3.28	23%

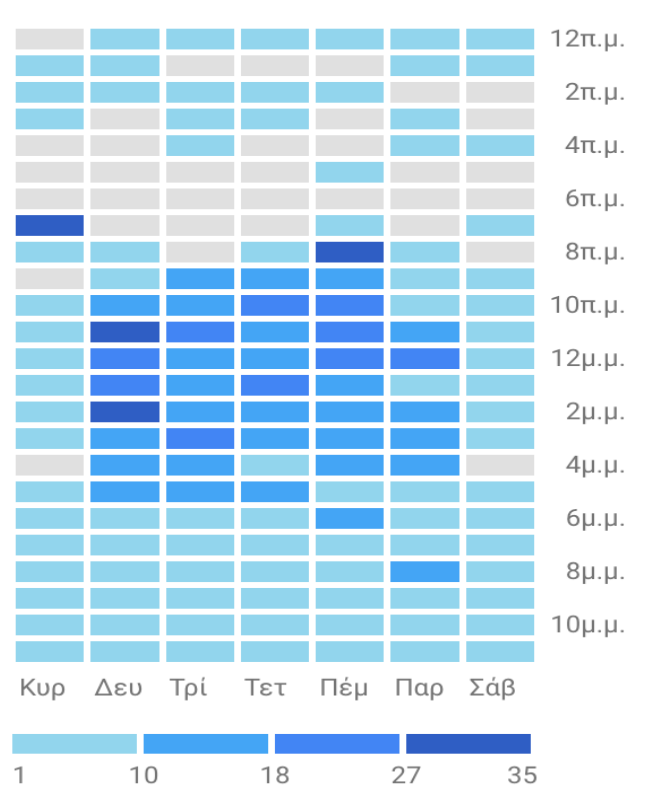


**Figure 4. Website visitors, new users**

Monitoring and analyzing geographical and time data using appropriate tools (web analytics, survey...) and performance measurements (see Figure 5 and Figure 6) allow us to get reports that will help our effort to better organize and meet PLUG-N-HARVEST dissemination and promotion goals, as well as to readjust actions whenever required.



**Figure 5. Website visitors, time periods per country**



**Figure 6. Users per hour**

## 5 Social media

Communication on social media can build trust and community by inviting and contributing to conversations online. Facebook and Twitter, the project's two main social media accounts share project information, reports and upcoming events, information about partners' activities, and related news and readings.

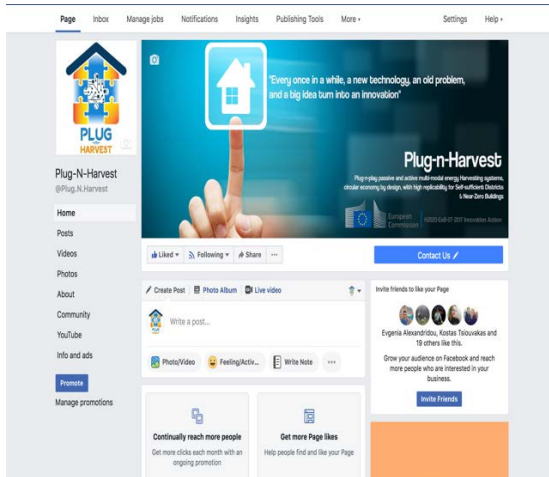


Figure 7. Screenshot of the Facebook page



Figure 8. Screenshot of the Twitter page

### 5.1 Facebook

The PLUG-N-HARVEST Facebook page was launched in September 2017 to build an online community around the project. The Facebook posts share project updates with more context than Twitter, and higher frequency than the website. The page currently has 48 “likes”. It can be viewed at the URL: <https://www.facebook.com/Plug.N.Harvest/>.

### 5.2 Twitter

The PLUG-N-HARVEST Twitter account was launched in September 2017 to share project updates and contribute to the online presence of the project. Due to a GDPR issue the account was automatically locked. The account had to be recreated in September 2018 for this reason the page currently has 26 followers. It can be viewed at the URL: <https://twitter.com/PlugHarvest>.

### 5.3 Future development of social media

A LinkedIn group and google+ account were already created and will be further developed to share updates similar to those on Facebook, but accessible to more professional audiences. A YouTube account was created also in order to be used in the future for videos that will optically present our product in a conversational form, ensuring this way, a sense of confidence to PLUG-N-HARVEST by the potential consumers.



## 6 Network of Interest

### 6.1 Contact email

The contact email [info@plug-n-harvest.eu](mailto:info@plug-n-harvest.eu) was created at M3 and is added to all project communication materials and online tools. This contact email is managed by the dissemination and promotion leader (CERTH).

### 6.2 Audience

PLUG-N-HARVEST is targeting various stakeholders (mainly from energy and facility management sectors) through a communication mailing list called “network of interest”. The network of interest list will be used when publishing the newsletter and communicating about events as well as when an external survey is carried out. All project partners have access to a shared file to suggest potential members from external organizations.

### 6.3 Project Flyer, Brochure and Poster

A promotional brochure has been designed at M3, containing the project major attributes as well as exposing the PLUG-N-HARVEST contribution to every potential user. In addition, the brochure developed in order to illustrate the basic attributes of the project. The basic program for the creation was GIMP (GNU Image Manipulation Program) open-source raster graphics editor that used for image retouching and editing, free-form drawing, converting between different image formats, and more specialized tasks in Microsoft Windows environment. A flyer and a poster containing the project key facts will be produced at M12.



Figure 9. Project brochure

P-n-H flyer is an advertisement paper intended for wide distribution and typically posted or distributed in a public place, handed out to individuals or sent through the mail. A promotional

flyer has been also designed at M6, which illustrates a full page advertising print which is targeting to stakeholder's attention for P-n-H initiative. This promotional flyer illustrates the projects basic attributes exposing the PLUG-N-HARVEST advantage to every potential stakeholder. The basic program for the creation was GIMP (GNU Image Manipulation Program) open-source raster graphics editor that used for image retouching and editing, free-form drawing, converting between different image formats, and more specialized tasks in Microsoft Windows environment.



Figure 10. Project flyer

Table 5. Project promotional material

PROJECT PROMOTIONAL MATERIAL			
	Format	Due date	Done
Flyer	8.268x11.644	M18	X
Poster	X	M18	X
Brochure	15.9x17.78	M3, M30	√, M30

## 7 Publication activities

### 7.1 Journal and Conference publications

Status	Title	Authors	Journal/ Conference	Partner
19/09/18	Circular Economy in European Rehab Projects	Anna Mestre Amelia Cabrera	HolaHoop Event Symposium at Barcelona Design Center. Short mention of the project PnH	AHC
15/10/18	3 H2020 Projects focused in Energetic Refurbishment in Social Housing	Anna Mestre Amelia Cabrera	REhabilita Congress Week www.Rehabilita.cat Short presentation of the project PnH	AHC
Publication in Oct. 2018	<b>PLUG-N-HARVEST: A modular facade system with integrated building technology for retrofitting</b>	Verena Dannapfel, Tanja Osterhage, Maike Klein, Rita Streblov, Marius Vontein, Dirk Müller, Markus Kuhnhenne	Conference: Advanced Building Skins	RWTH
Publication not yet confirmed; Review still in progress (Publication planned for 01/2019)	<b>The PLUG-N-HARVEST Facade System: An Adaptive Second Skin with Active and Passive Components</b>	Verena Dannapfel, Tanja Osterhage, Maike Klein, Rita Streblov, Marius Vontein, Dirk Müller, Markus Kuhnhenne	Conference: PowerSkin 2019 Journal: Journal of Facade and Engineering	RWTH

### 7.2 Relevant PHD, MCs or BSc Thesis

Partner	Title	Date	Authors	Place of publication	Type of activity
CERTH	Self-Adaptive Control for Internet of Things	pending	Panos Michailidis	Ksanthi, Greece	PhD thesis
CERTH	Machine Learning Techniques in	pending	Savvas Apostolidis	Ksanthi, Greece	PhD thesis



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Internet of Things  
Applications

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**7.3 External events and Press releases**

Partner	Type of the Event or Press Release	Title	Date	Place
<b>RWTH</b>	Advanced Building Skins	PLUG-N-HARVEST H2020 project	01/10/2018	Bern, Switzerland
<b>ODINS</b>	IoT World Congress	PLUG-N-HARVEST project	16/10/2018	Barcelona, Spain



## 8 Conclusions and next steps

The first year of the project has laid a foundation for project communication. Despite unforeseen delays, all deliverables planned for the first year have been completed. Furthermore, the major infrastructure for the project (corporate design, website, social media, newsletter, and internal communication tools) is in place and ready to support the growing project communication activities.

Communication activities in the second year will focus on:

- Raising awareness of the project through social media content and outreach materials (i.e. profiles of consortium members, videos, articles, etc.)
- Building trust in the project by demonstrating the research and innovation approaches taken by PLUG-N-HARVEST (i.e. highlighting the research and innovation Field Trips)
- Greater integration of partners in both external communication (i.e. rotating guest tweeters or highlighting partners' research activities) and internal communication (i.e. facilitating collaboration using the email discussion list)

These priorities will guide communication in PLUG-N-HARVEST's second year as the project prepares the new strategies to put in place at the pilot sites.