DC4Cities
An environmentally sustainable data centre for Smart Cities

Project № 609304

Report on the 2nd period of dissemination

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Contributors: FM, UNIMA, HP, UNI PASSAU, CREATE-NET, ENEA, CSUC, INRIA, GN, IMI
Document Reference: D8.3 - Report on the 2nd period of dissemination
Level: PU
Version: 1.0
Date: 15.09.2015
EXECUTIVE SUMMARY

This document contains the second report on dissemination activities of the project DC4Cities, describing in detail the dissemination activities in the second period (September 2014 – August 2015) of the project. Besides that, the achieved dissemination activities in the first period will also be mentioned to give a more complete picture of the progress.

The consortium achieved a wide variety of different dissemination activities in this reporting period. One highly visible workshop was organized (E²DC in Bangalore on 14th July 2015) and the ICT4S workshop on 7th-9th September 2015 will follow at the beginning of the third period; several publications were issued and many internal and external presentations and talks were held to disseminate the project and its current insights. A video was produced by University of Passau which will be published in September 2015. The press release in the Energy Innovation Magazine:

http://www.europeanenergyinnovation.eu/OnlinePublication/Spring2015/

was issued, leading to several appearances in the news and a lot of effort was invested in our social media section to disseminate the project in a widespread way. Additionally, our website blog provides a good overview about events and news about the project.

This document is organized as follows: The first section is a short introduction to this deliverable. Section II is a retrospection of the achieved dissemination activities in the first period (from September 2013 to August 2014). Section III refers to the set objectives, target groups and metrics of the dissemination plan. It presents the achieved dissemination activities in the second period of September 2014 to August 2015 and ends with a short summary of all achieved dissemination activities. Section IV is a summary of the achieved dissemination activity of the first two periods and gives an overview on already achieved and ongoing dissemination targets. Finally, Section V presents the planned dissemination activities for the last period of the project, from September 2015 to February 2016.
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I. INTRODUCTION

I.1. Overview

The project consortium has initiated a community of interest composed of stakeholders through conferences, meetings other standard dissemination channels at overall project level (e.g., workshop events, website and printed and electronic information material).

Dissemination activities are covered through contribution of all DC4Cities partners and collected and controlled by University of Passau, the dissemination leader of the project. CSUC coordinates activities regarding social network and the website blog.

In the dissemination plan for WP8, several different goals were defined for the project DC4Cities. The main goal is to deliver project-relevant information to several target groups like decision makers of companies in the energy sector, participants on the energy market, data centre management companies and so on. A detailed list can be found in the final dissemination plan for WP8.

As not all target groups can be addressed in the same way, several different dissemination activities/channels are used:

- Publications
- Talks/presentations
- Brochures
- Posters
- Social network activities
- Promotional video
- Demonstrations
- Educational uses of DC4Cities
- Experimental uses of DC4Cities
- Web presence
- Workshops organization
- Cooperation with other projects
- Press releases

In chapter II, the already achieved dissemination activities of the first period and updates are listed. In the other chapters, the determined goals of the dissemination plan are mentioned (objectives, target groups, metrics and targets) on the one hand, and the achieved results on the other hand. The summary of all claimed and reached dissemination activities follows in the section summary and outlook. Figure 1 shows the general activity plan, which was set up in the dissemination plan of WP8.

<table>
<thead>
<tr>
<th>Dissemination activities</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Legend</th>
</tr>
</thead>
<tbody>
<tr>
<td>Publications</td>
<td></td>
<td></td>
<td></td>
<td>Little activity</td>
</tr>
<tr>
<td>Talks/presentations</td>
<td></td>
<td></td>
<td></td>
<td>Medium activity</td>
</tr>
<tr>
<td>Brochures</td>
<td></td>
<td></td>
<td></td>
<td>High activity</td>
</tr>
<tr>
<td>Posters</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social network activities</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Educational uses of DC4Cities</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimental uses of DC4Cities</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Web presence</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Workshops organization</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cooperation with other projects</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Promotional videos</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Press releases</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 1: Planned dissemination activity during the project phases
I.2. Definitions and Terms

The following list shows how partners are mentioned in this deliverable by their contributions.

<table>
<thead>
<tr>
<th>Partner</th>
<th>Term in the document</th>
</tr>
</thead>
<tbody>
<tr>
<td>Create-Net</td>
<td>[CREATE-NET]</td>
</tr>
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<td>CSUC</td>
<td>[CSUC]</td>
</tr>
<tr>
<td>ENEA</td>
<td>[ENEA]</td>
</tr>
<tr>
<td>Freemind</td>
<td>[FM]</td>
</tr>
<tr>
<td>Gas Natural</td>
<td>[GN]</td>
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<tr>
<td>HP</td>
<td>[HP]</td>
</tr>
<tr>
<td>IMI</td>
<td>[IMI]</td>
</tr>
<tr>
<td>Inria</td>
<td>[INRIA]</td>
</tr>
<tr>
<td>University of Mannheim</td>
<td>[UNIMA]</td>
</tr>
<tr>
<td>University of Passau</td>
<td>[UNI PASSAU]</td>
</tr>
</tbody>
</table>

I.3. Definitions of Google Analytics

<table>
<thead>
<tr>
<th>Definition</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Landing Page</td>
<td>A “Landing Page” is the first page a visitor views during a session; also known as the entrance page.</td>
</tr>
<tr>
<td>Session</td>
<td>A “Session” is the period in which a user is actively engaged with our website.</td>
</tr>
<tr>
<td>% New Sessions</td>
<td>An estimate of the percentage of first time visits.</td>
</tr>
<tr>
<td>New Users</td>
<td>One person who has not visited our site (not real, but…)</td>
</tr>
<tr>
<td>Bounce Rate</td>
<td>Percentage of single-page visits (i.e. visits in which the person left our site from the entrance page without interacting with the page). In this list, only landing pages with a bounce rate lower than 75% are considered.</td>
</tr>
<tr>
<td>Pages/Session</td>
<td>Average number of pages viewed during a session.</td>
</tr>
<tr>
<td>Avg. Session Duration</td>
<td>The average length of a session.</td>
</tr>
</tbody>
</table>

Table 1 shows different explanations for the social media section.
II. DISSEMINATION ACTIVITIES IN THE FIRST PERIOD

In period 1 of the project (September 2013 – August 2014) there were several different dissemination activities, which are listed in the following section. The corresponding abbreviation list can be found under Table 1. For more details regarding the different reached dissemination activities, please see D8.2.

II.1. Summary of previous activities

- 5 publications (2 journal papers, 3 workshop papers)
- 22 talks/presentations (11 external talks and 11 internal talks)
- 1 brochure (designed by University of Passau)
- 1 poster (designed by University of Mannheim)
- A website was created by Freemind in the first months of the project
- Several educational uses of DC4Cities
- 1 workshop organization (E²DC 2014 Workshop, held in Cambridge, UK)
- DC4Cities stands in cooperation with the Smart City Cluster
- 9 Press releases (5 press articles and 4 online articles)
- 1 Blog
- 3 other disseminations

II.2. Supplement of D8.2

For the sake of completeness, there are some information which have to be corrected regarding deliverable D8.2 and the reached dissemination activities:

- Educational uses of DC4Cities in the first period (for more details, please see D8.4):
  - 6 bachelor thesis
  - 1 lecture
  - 1 seminar
  - 5 PhD students have researched on their PhD thesis with a DC4Cities related topic.
- One mentioned paper was accepted in the second period instead of the first period:
  - Corentin Dupont [CREATE-NET], Fabien Hermenier [INRIA], Thomas Schulze [UNIMA], Robert Basmadjian [UNI PASSAU], Andrey Somov [HP], Giovanni Giuliani [HP], Plug4Green: A Flexible Energy-aware VM Manager to Fit Data Centre Particularities, Ad Hoc Networks: Special Issue on Energy-Aware Data Centres: Architecture, Infrastructure, and Communication, Elsevier B.V. Paper has been accepted.
- The following book mentioned in D8.2 was published in December 2014 (second, not first period):
- One external talk was missing in D8.2:
III. DISSEMINATION ACTIVITIES IN THE SECOND PERIOD

III.1. Overview of the reached and outstanding dissemination goals

When DC4Cities started in September 2013, there were a lot of different goals to reach. These goals were distributed in general goals like:

- Creating (long-term) interest within research communities for the developed methods and technologies, methods and insights of DC4Cities by teaching in lectures and tutorials
- Reaching different target groups
- Influence standardization activities (see D.7.2, III. 1.2.c.9 Reporting, Task 5)

and on the other side quantitative goals, represented as facts and numbers regarding our dissemination activities. Please find the complete list of goals in D8.2.

These goals are mentioned in different sections of this document, together with the reached results. A lot of the goals are not determined for the complete project period, therefore in this chapter the target goals and results from the first two periods will be summarized and listed which goals were already reached and which disseminations are still outstanding.

III.1.1. Publications

Publications are one of the most scientifically relevant dissemination activities in DC4Cities. Creating interest within research communities for the developed methods and technologies, creating long-term interest in methods and insights of DC4Cities by teaching in lectures and tutorials are the main objectives. The academic community, participants of related projects and in some cases also standardization bodies count to the target groups. The used metric is based on the number of submitted papers and the number of accepted papers.

The determined targets are:

- Journal papers: 8-11 submitted, 7-9 accepted
- Conference papers: 13-18 submitted, 10-15 accepted
- Workshop papers: 13-18 submitted, 10-15 accepted

In the first period, the following numbers were reached (please see D8.2 for details):

- 2 journal Papers: 2 submitted, 2 accepted
- 0 conference Papers: 0 submitted, 0 accepted
- 3 workshop Papers: 3 submitted, 3 accepted

In the second period, the following numbers were reached:

- 1 journal Papers: 1 submitted, 1 accepted
- 5 conference Papers: 5 submitted, 5 accepted
- 2 workshop Papers: 2 submitted, 1 accepted

In the first two periods, the following numbers were reached:

- 3 journal Papers: 3 submitted, 3 accepted
- 5 conference Papers: 5 submitted, 5 accepted
- 5 workshop Papers: 5 submitted, 4 accepted

From the original set goal of at least 27 accepted publications divided into journal, conference and workshop papers the project consortium achieved a number of 12 accepted publications and one published book. The publications consist of three journal papers, five conference
papers and four workshop papers. Therefore, four journal, three conference and four workshop papers are outstanding to fulfill the set goal. A lot of effort was invested to reach high quality publications. Also, once final trial results are available another increase in publication activity is expected.

The following table shows the different publications during the first and the second period.

<table>
<thead>
<tr>
<th></th>
<th>Period 1</th>
<th>Period 2</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Book</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Journal paper</td>
<td>2</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Conference paper</td>
<td>0</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Workshop paper</td>
<td>3</td>
<td>2</td>
<td>4</td>
</tr>
</tbody>
</table>

III.1.2. Academic events

Regarding the set goals in the section of academic events, it is required to attend in 20-30 different conferences with at least 50 attendees and in 10-20 complementing workshops with 20-40 attendees. After the first two periods the project consortium attended in 14 conferences and 10 workshops. These numbers combine the presentations of papers and posters and the general participation in these kind of events. The numbers of participations could be reached mostly, please see the details below.

For the last period at least six participations to conferences and two participants in workshops are needed to reach the lower end of the set goals, which is a realistic expectation.

The following table shows the attendance by project partners in major conferences and workshops during the first and second period.

<table>
<thead>
<tr>
<th></th>
<th>Period 1</th>
<th>Period 2</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conferences</td>
<td>3</td>
<td>11</td>
<td>16</td>
</tr>
<tr>
<td>Workshops</td>
<td>6</td>
<td>4</td>
<td>10</td>
</tr>
</tbody>
</table>

III.1.3. Workshops

In each of the first two periods the project consortium has organized one highly visible workshop and the third one will be held in September 2015, at the beginning of the third period. For the two workshops E²DC 2014 and E²DC 2015, the required numbers could be nearly fulfilled. Only the number of accepted papers (12-16 demanded) was lower than required. In the first workshop 10 and in the second workshop 6 accepted papers were achieved instead of the claimed 12. In contrast, the required number of 30-40 participants to the workshop was always fulfilled.

Information about the achieved numbers in workshops which were held by the project partners.

- **Period 1: E²DC 2014 Cambridge, UK**
  - 10 accepted papers
  - 30 experts in the field from Europe and Oversea
  - More than 10 different countries were present

- **Period 2: E²DC 2015, Bangalore, India**
III.1.4. Industrial conferences

The required goal of participating in three industry-oriented events per year could be fulfilled, looking at the numbers after the first two periods. Overall, in the first period the project committee attended in one industrial conference and in six industrial conferences during the second period. Hence in total the project consortium joined seven industry oriented events with a total event audience much higher than the required 200 attendees. The required audience to DC4Cities dedicated sessions with 25 or more was also fulfilled.

III.1.5. Internal and External Dissemination / Talks and presentations

It is extremely difficult to give the required numbers about internal and external people contacts. Therefore, the numbers of well documented internal and external talks of our project partners were listed, also with the number of participants. These talks are a very useful and good channel to disseminate the project DC4Cities. Considering the number of participants in the given talks, it is clearly visible that a lot of different people are reached and therefore this dissemination channel can be seen as fulfilled by our efforts.

The following table shows the amount of internal and external talks by the project partners during the first two periods.

<table>
<thead>
<tr>
<th>Period</th>
<th>Talks internal</th>
<th>Talks external</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>10</td>
<td>11</td>
</tr>
<tr>
<td>2</td>
<td>5</td>
<td>21</td>
</tr>
<tr>
<td>Total</td>
<td>15</td>
<td>31</td>
</tr>
</tbody>
</table>

In Addition to the industrial conferences, the number of participants during the talks is mostly also above 25 or close to that.

III.1.6. Brochures and posters

In the first 2 periods four poster presentations were achieved beside the 10 which were required at least. In the first period, only one poster was created to show the overall goals of the project, which gives an overview on the project background, metrics and trials. As missing concrete trial results, no more posters were created. The numbers were improved in the second period with three accepted posters and so come close to the set goals. Additionally, in the end of the first period, a brochures was created, which was distributed in several conferences, workshops and other events with DC4Cities related topics. Until the end of the second period, approximately 150 brochures were distributed, an additional 100 were printed by Freemind for the KPI4S workshop at the beginning of September. So, until the end of the project, the amount of distributed brochures has to be doubled to achieve the set goal.

The following table shows information about the achieved numbers regarding posters and distributed brochures during the first two periods.

<table>
<thead>
<tr>
<th>Period</th>
<th>Poster</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>4</td>
</tr>
</tbody>
</table>

After the first two periods, approximately 150 brochures were distributed.
III.1.7. Press releases and online articles

The set goal of 25 press releases (press articles and online articles) per year could not be completely fulfilled. However, after the first two periods 27 press releases were published. It has to be mentioned that it was decided to spread our dissemination activity to further dissemination channels instead of only publishing press releases. Therefore, a blog was created on our website, which reports about the progress and results of the project, events and meetings. After the second period, 20 blog entries in addition to our press releases were achieved, which have to be taken into account when the set targets and goals are compared.

The following table shows information about the achieved numbers regarding press releases, online articles and brochures.

<table>
<thead>
<tr>
<th></th>
<th>Period 1</th>
<th>Period 2</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Press releases</td>
<td>11</td>
<td>3</td>
<td>14</td>
</tr>
<tr>
<td>Online articles</td>
<td>4</td>
<td>9</td>
<td>13</td>
</tr>
</tbody>
</table>

III.1.8. Online activities

Regarding online activities, some goals could be completely fulfilled after the first two periods, while others need additional improvements. Fully achieved goals are for example the required hits on our webpage and the number of downloads. With more than 11,000 hits and more than 1,300 downloads, required numbers have been exceeded.

On the other hand, especially in the social media section, the Twitter likes, mentions and retweets and the number of LinkedIn group members, are only a fraction of the required number. Of the required 250 followers in Twitter and LinkedIn group members, only 57 followers on Twitter and 39 LinkedIn group members could be achieved. The number of needed likes, mentions and retweets are only one third of the set goal of 100 per year.

Here it has to be taken into account that the social media section starts first in October 2014 and not directly with the project itself. Nevertheless, the achieved numbers provide useful information. As already discussed in III.2.8.c. from Twitter alone, DC4Cities website received 136 sessions, which are 746 pages viewed (an average of 5.5 pages per session during an average of 12 minutes). This means that most people coming from Twitter are very interested in this topic. Therefore, it is important to improve these numbers. It has to be taken into account that the Twitter profile is only ready since the end of September 2014 and other values like “impressions” have a higher ranking.

In detailed, during the first two periods the following numbers were achieved.

- **Website**
  - More than 10,000 hits on our website
  - More than 1,300 downloads

- **Blog**
  - 19 blog entries on our website

- **Social network activities / Social media**
  - 57 followers on Twitter
  - 32 favorites on Twitter (likes)
  - 32 mentions
  - 35 retweets
  - 38 LinkedIn group members
  - 48 likes
III.1.9. Promotional videos

In the dissemination plan it was requested to create one project video with at least 100 hits per year. The project video was created by University of Passau at the end of August 2015 and will be published during September 2015. Therefore, no numbers of the project video are available yet. Nevertheless, to create the project video, a professional speaker was hired, some of our project partners are interview partners in the video and lot of high quality shutter stock material were used. The quality of the video can be classified as very high, which makes it more than realistic to achieve the required numbers easily after the project video goes online. The project video will be published on YouTube, on our project website and our following talks and presentations.

III.1.10. Educational uses of DC4Cities / Teaching

Educational uses of DC4Cities are primarily addressed to research facilities like for example University of Passau or University of Mannheim. The required goals are not defined for each facility, these goals are for all research facilities.

In case of project related courses (course = lecture units or seminar units) the required numbers could be fulfilled. On the other hand 5-10 Bachelor and Master Theses should be started each year. Besides the fact that this number is really high, seven Bachelor and two Master Thesis with DC4Cities related topics were achieved. Also one practical course and two seminars are complementing these numbers.

It was also claimed that 5-10 PhD students have to perform on their PhD Theses with a DC4Cities related topic. This goal could be also fulfilled with different PhD students. Please see for more details the section III.2.10. or deliverable D8.4 in which this topic is also discussed.

The following table shows the achieved numbers regarding DC4Cities related courses, Bachelor and Master Theses and information about PhD students which have performed on their PhD thesis in relation to DC4Cities during the project.

<table>
<thead>
<tr>
<th></th>
<th>Period 1</th>
<th>Period 2</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lectures</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Bachelor thesis</td>
<td>6</td>
<td>2</td>
<td>8</td>
</tr>
<tr>
<td>Master thesis</td>
<td>0</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Practical courses or Seminars</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

During the project period nine PhD students have performed on their PhD thesis, with a DC4Cities related topic. As this is more related to exploitation, please see section VI.1 in D8.4, where educational uses of DC4Cities are described in more detail.

III.1.11. Cooperation with other projects

Cooperation with the smart city cluster with eight FP7 and one H2020 project.

Based on the mentioned numbers, a lot of different dissemination activities were done for the project DC4Cities. Especially the number of 14 accepted publications during the first two periods, the public sector with talks, articles, attendance in conferences and workshops, blogs and website are strongly represented in the dissemination activities and additionally the produced video, the press article in an EU magazine and teaching usage of DC4Cities related topic in an educational way emphasis the huge amount of different dissemination channels.
III.2. Detailed description of the performed activities

III.2.1. Publications

Publications are one of the most scientifically relevant dissemination activities in DC4Cities. Several publications were reached in the second period of the project.

III.2.1.a. Journal papers

- Fabien Hermenier [INRIA], Thomas Schulze [UNIMA], Robert Basmadijan [UNI PASSAU], Andrey Somov [CREATE-NET], Giovanni Giuliani [HP], Plug4Green: A Flexible Energy-aware VM Manager to Fit Data Centre Particularities. Published in Elsevier: “Ad Hoc-aware VM Manager to Fit Data Centre Particularities”. Published in Elsevier: “Ad Hoc-aware VM Manager to Fit Data Centre Particularities”.

III.2.1.b. Books


III.2.1.c. Conference papers


- Vincent Kherbache [INRIA], Eric Madelain [INRIA], Fabien Hermenier [INRIA]. Ordonnancement contolé de migration à chaud. Conférence d'informatique en Parallélisme, Architecture et Système. Lille, France. 20.04.2015 (ca. 60 participants in the presentation).


III.2.1.d. Workshop papers

- Florian Niedermeier [UNI PASSAU], Wolfgang Duschl [UNI PASSAU], Torben Möller [UNIMA], Hermann de Meer [UNI PASSAU]. Increasing Data Centre Renewable Power Share via Intelligent Smart City Power Control. International Workshop on Energy-Efficient Data Centres. Publisher ACM.

- Milagros Rey Porto [GN] & other cluster representatives. Paper submission on first IEEE International Workshop on Green Standardizations and Industry Issues for ICT and Relevant Technologies (GSICT), Organized in conjunction with IEEE Global Communications Conference (GLOBECOM 2015) (Pending)

III.2.2. Academic Events

To raise awareness of the project and the project results in the academic community, personal presence is also very important. Besides creating interest within research communities for developed methods and technologies, influencing standardization activities and alignment of the DC4Cities project with other approaches and projects are main objectives. Different conferences and workshops like ACM SIGCOMM or ACM e-Energy can be interesting events for partners of the DC4Cities project. The target groups can be assumed similar to those of publications.

It will be measured by the number of attended conferences with a certain number of attendees and the potential of a long-term benefit via personal social networking.

The determined targets are:

- Attending in 20-30 of the major conferences with at least 50 attendees each.
- Attending in 10-20 complementing workshops in different of the mentioned areas with 20-40 attendees each.

The numbers regarding the attending of conferences and workshops are composed of paper presentations, poster presentations and attending conferences or workshops without presentation of papers or posters.

(paper presentations / poster presentations / attending conferences or workshops)

In the first period, the following numbers were achieved:

- 3 (0 / 0 / 3) major conferences (includes the presentations of conference papers, poster presentations and participations in different conferences).
- 5 (3 / 1 / 1) complementing workshops (includes the presentations of workshop papers, poster presentations and participations in different workshops).

In the second period, the following numbers were achieved:

- 11 (6 / 2 / 3) major conferences (includes the presentations of conference papers, poster presentations and participations in different conferences).
- 3 (2 / 0 / 1) complementing workshops (includes the presentations of workshop papers, poster presentations and participations in different workshops).

The claimed numbers of 50 attendees in conferences and at least 20 attendees in workshops were nearly always fulfilled or very close to these numbers.

The presentations and talks are listened below, in the section Industrial conferences and Internal and External Dissemination / Talks and presentations. Detailed information on attendees for the conferences and workshops can be seen at the end of each entry.
Participation in workshops and conferences where no paper or poster was presented are listened below:

Workshop participations:

Period 1:
- Sonja Klingert [UNIMA], Marta Chinnici [ENEA] and Milagros Rey Porto [GN] were the workshop chairs in E-Energy/E²DC 2014. Hermann de Meer [UNI PASSAU], Eric Madeleine [INRIA], Maria Perez Ortega [GN] were in the technical program committee in E-Energy/E²DC 2014 besides several other project partners. 3rd International Workshop on Energy-Efficient Data Centres. Held in Cambridge, UK. 10.06.2014.

Period 2:
- Sonja Klingert [UNIMA] and Fabien Hermenier [INRIA] were the workshop chairs in E-Energy/E²DC 2015 from the project partners. Marta Chinnici [ENEA] and Hermann de Meer [UNI PASSAU] from the project partners were in the technical program committee in E-Energy/E²DC 2015. 4rd International Workshop on Energy-Efficient Data Centres. Held in Bangalore, India. 14.07.2015. Technical program committee.

Conference participations

Period 1:
- Vincent Kherbache [Inria] attended GreenDays@Lille, November 2013, Inria Lille Nord Europa, France (ca. 40 participants).

Period 2:
- Vincent Kherbache [Inria] attended Winter School on Hot Topics in Distributed Computing (HTDC ’15), March 2015, Flaine, France (http://htdc2015.inria.fr/fr/) (ca. 30 participants).
- Sonja Klingert [UNIMA] attended E-Energy July 2015 (session chair) (ca. 50 participants).

III.2.3. Workshops

Organization of workshops offers a very good possibility to disseminate the project DC4Cities to other interested researchers. Especially regular workshop events under the same topic can provide a long-term benefit of a growing scientific community. The target groups can be assumed similar to those of publications.
The success of a workshop is measured by the number of accepted papers, the number of attendees and the number of participating countries.

The determined targets are (for each workshop):

- 12-16 accepted papers
- 30-40 participants
- Participants from at least 10 different countries.

**In the first period the E²DC 2014 workshop was organized with the following results:**

- E²DC 2014 (Held in Cambridge, UK):
  - 10 accepted papers
  - 30 experts in the field from Europe and Oversea attended the workshop
  - More than 10 different countries were present

**In the second period the E²DC 2015 workshop was organized with the following results:**

- E²DC 2015 (Held in Bangalore, India):
  - 6 accepted papers
  - Approximately 30 participants attended the workshop
  - More than 10 different countries were present

For more information on the E²DC 2014 workshop, please see D8.2. Information on the E²DC 2015 workshop is given in the following.

### III.2.3.a. E²DC 2015 Workshop

The E²DC workshop series has been organized by the core team of the FIT4Green, All4Green, and DC4Cities project series from the very beginning. E²DC 2015, the 4th International Workshop on Energy Efficient Data Centres, was again the greatest part organized by DC4Cities personnel and again colocated with the high profile conference ACM e-Energy 2015 in Bangalore, India on July, 14th 2015.


The participation was a bit lower in numbers than in the years before (slightly less than 30), but the auditory was constituted of very heterogeneous and highly active experts from all over the world, including India, Australia, USA, and of course many EU member states. The program was rounded up by a panel on issues regarding DCs in a world of insecure power availability.

The proceedings are available in the ACM digital library:

http://dl.acm.org/citation.cfm?id=2768510

**Workshop Chairs:**

- Sonja Klingert [UNIMA], University of Mannheim, Germany
- Gunnar Schomaker, Software Innovation Campus Paderborn – Germany
- Fabien Hermenier [INRIA] – University of Nice, Sophia-Antipolis – France

**Keynote:** Amod Ranade, General Manager Data Center Business Development at Schneider Electric.
A third workshop is planned for the beginning of September 2015. All information available at the time of writing regarding this workshop is given below. It will be held in the third project period.

### III.2.3.b. KPI4DC Workshop

In the **third period** of the project, the KPI4DC workshop will be held during the ICT4S 2015 conference in Copenhagen. For the sake of completeness regarding workshops which are organised by our partner, this information is mentioned here, but counts for the last period.

The main objective of this workshop is to present to the different stakeholders the benefits that the usage of **key performance indicators** can provide as a tool to assess (and improve) DC energy, economic and environmental behaviour by the IT industry as well as to foster sustainability in the data centre field by policy makers.

The workshop is being organized in collaboration with other projects of the Smart City Cluster. Cluster main results regarding KPIs and methodologies will be presented. Moreover, projects will describe how these KPIs and methodologies will be used in their projects to evaluate the achievement of goals. At the end of the workshop, a discussion session open to all the attendees will be engaged.

**Workshop Chairs:**
- María Pérez Ortega [FM]: Freemind Consulting, BE
- Silvia Sanjoaquín Vives [GN]: Gas Natural Fenosa, ES
## III.2.4. Industrial conferences

Besides targeting the scientific and academic community, industrial conferences address the industrial community and raise the awareness of the project DC4Cities within the industrial sector. The IT community, essentially data centre operators and non-IT stakeholders, mainly smart city actors can be differentiated. Target events are for example: Data Cloud Global Congress (DCG), Data Center World or the Smart City Expo World Congress (SCEWC). The target groups are decision makers of companies in the energy sector and DC management companies as possible candidates to implement the data centre side of the DC4Cities framework. The main objectives are actors in the energy market (DC market, administrative and political personal), creating interest in industrial companies or aligning the DC4Cities project with other approaches and projects. The number of attended events is an important metric.

### The most important determined targets are:

- Participation in three industry-oriented events per year
- Total event audience above 200 people related industrial or public sector communities
- Average audience of 25 people from for DC4Cities dedicated sessions

#### III.2.4.a.1. Industry oriented events

In the first period, the following numbers were achieved:
Giovanni Giuliani [HP]. Maximizing Renewable Energy Utilization in a Data Centre. Presentation about DC4Cities. 27.05.2014. Datacentres Europe 2014.
  o Total event audience over 1.500 (ca. 50 participants during the presentation)
Hermann de Meer [UNI PASSAU].

In the second period, the following numbers were achieved:

Hermann de Meer. Energy Savings and Power Shifting in Data Centres – How Consumption and Demand can be matched with Supply. 27.10.2014 – 29.10.2014 Frankfurt Data Centre World. Powering the Cloud, Frankfurt, Germany.
  o Total event audience over 3.500.

Hermann de Meer [UNI PASSAU]. Talk about All4Green and DC4Cities. Smarter Europe Conference E-World 2014, Essen, Germany. 02.11.2014
  o Total event audience more than 2.600 (ca. 20 participants during the presentation)

  o Total event audience over 2.500 (ca. 50 participants during the presentation).

Jordi Guijarro [CSUC]. Políticas energéticas y centros de datos en el proyecto europeo DC4Cities. 09.04.2015. At DCD CONVERGED Madrid, Spain.
  o [http://www.slideshare.net/DC4Cities/0409-dc4cities-dcdc-igujiarro](http://www.slideshare.net/DC4Cities/0409-dc4cities-dcdc-igujiarro)
  o [http://www.datacentreworld.de/Content/Anreise-and-Aufenthalt/5_10/](http://www.datacentreworld.de/Content/Anreise-and-Aufenthalt/5_10/)
  o Total event audience over 1.000 (ca. 50 participants during the presentation).

Sonja Klingert [UNIMA] and Hermann de Meer [UNI PASSAU]. German Data Centre Award: 2nd Place. 20.04.2015. Future Thinking Conference, Darmstadt, Germany.
  o 50 exhibitors and total event audience over 400 (no presentation. Award was given).

Sonja Klingert [UNIMA]. DC4Cities: Following the Patterns of Renewable Power in a Smart City. 02.06.2015. DataCloud Europe 2015 in Monaco
  o More than 55 countries joined DataCloud Europe 2015.
  o Total event audience much over 200 participants (ca. 50 participants during the presentation).

As can easily be seen, the total event audience is above 200 participants, in most cases much more. The required goal of at least 25 people during DC4Cities dedicated sessions was always fulfilled. This goal is not only reached in industry oriented conferences, but also in most of our given talks and presentations (please see Internal and External Dissemination / Talks and presentations). Available numbers of the participants during the talks were added at the end of each entry.
III.2.5. Internal and External Dissemination / Talks and presentations

The section “Internal Dissemination” of the dissemination plan were updated to “Internal and External Dissemination / Talks”. Internal and external talks are channels which focus on raising the awareness about the project DC4Cities in the partner’s organizations and the community of interest in this topic. Propagation of project relevant information to the target groups, creating interest and spreading the idea of the project and goals can be reached this way.

The main objectives are reaching actors in the energy market (DC market, administrative and political personal), creating interest in industrial companies or aligning the DC4Cities project with other approaches and projects and create awareness about project results to potential adopters.

The goals are:

• Average of 10 internal people contacts per year per large company
• Average of 2 induced external contact per year per large company.

The project was discussed internally with other working groups and also with external guests, however it is hard to provide consistent and exact information on this, as on the one hand it is hard to measure which internal talks (length, information, topics) counts to this metric and on the other hand, these kind of talks are not documented. In contrast, official internal and external talks are well documented and mostly also the number of participants are available.

In the first period, the following numbers were reached:

• 10 internal talks
• 11 external talks

In the second period, the following numbers were reached:

• 5 internal talks
• 19 external talks

At the beginning of the project, when trial results were available, the number of internal talks was high in comparison to the second period. Regarding the external talks, a lot of dissemination activities were undertaken to spread knowledge of the project to a lot of different researchers, institutions and industrial companies.

For talks in the first period, please see D8.2. Results for the second period are listened below. The numbers of participants were requested from the individual partners. In case the concrete number was not available, an estimate regarding the number of attendees was given. If the number is missing, no information about the amount of attendees was available.

III.2.5.a. Talks – Internal

• Milagros Rey Porto [GN] and Silvia Sanjoaquín Vives [GN]. DC4Cities was talked internally in the 2st Cluster Workshop on 10.09.2014. Spanish Office for Science and Technology/Brussels. Spanish Office for Science and Technology/Brussels (16 participants during the presentation).
• Federic Lombart [IMI]. General Talk Introducing DC4Cities. 19.11.2014. In Barcelona. Attendees of this talk were companies which are collaborating with IMI (Omega Peripherals and ATOS. Attendees: Albert Casadejust, Miquel Morell, Miguel Rodríguez, Ernest Vicen) (4 participants during the presentation).
• Giovanni Giuliani [HP]. HP Eco Advocates webcast on Products/Services. 18.03.2015. Webcast (more than 120 participants worldwide).
• Milagros Rey Porto [GN] and Silvia Sanjoaquín Vives [GN]. DC4Cities was talked internally in the 3rd Cluster Workshop on 09.04.2015. Gas Natural Offices / Barcelona (18 participants during the presentation).
• Giovanni Giuliani [HP], Paolo Barone [HP], Marco Di Girolamo [HP]. **HP internal knowledge brief: Environmentally Sustainable Datacenters for Smart Cities.** 15.05.2015 (no numbers of download available from the internal repository).

**III.2.5.b. Talks – External**

- Hermann de Meer [UNI PASSAU], Milagros Rey Porto [GN]. **Overview Smart City Cluster Collaboration.** 09.09.2014. Frankfurt KPI für Rechenzentren. Panel (no numbers of participants are available).
- Hermann de Meer [UNI PASSAU]. **Aufs RZ gehört Photovoltaik.** 01.11.2014. CIO IT-Strategie für Manager / Ausgabe Nr. 11-12/2014 (ca. 40 participants during the presentation)
- Hermann de Meer [UNI PASSAU]. Talk about All4Green and DC4Cities. **Smarter Europe Conference E-World 2014, Essen, Germany.** 02.11.2014

- Giovanni Giuliani [HP]. **DC4Cities and HP Solar Power Moonshot Experiment: Maximizing Renewable Energy Utilization in a Data Centre.** 04.11.2014. ECOMONDO fair, Nov 5-8 2014 @Rimini, Italy (ca. 50 participants).
- Sonja Klingert [UNIMA] held a talk about the conference paper **Perspectives for Energy-Aware Data Centre Management in Smart Cities** on the “SmartER Europa” conference. 12.02.2015
- Enrico Toson [HP]. **Social Corporate Responsibility of ICT companies for environmental sustainability.** 09.03.2015. Hold in Milan, Italy (ca. 30 participants during the presentation).
- Giovanni Giuliani [HP]. Best Practices for Green DCs: FIT4Green, All4Green and DC4Cities project overview. 31.03.2015. Cernusco S/N - Milan (Italy) (ca. 10 participants).
- Silvia Sanjoaquín Vives [GN]. **Proyecto DC4Cities: Environmentally Data Centres for Smart Cities.** 15.04.2015. IV Smart Energy Congress & Expo (organized by EnerTIC), Madrid, Spain (ca. 25 participants during the presentation).
- Hermann de Meer [UNI PASSAU]. **Renewable Power Supply: Smart or Risky?** 05.05.2015. Talk in the University of Oldenburg about DC4Cities. Oldenburg, Germany (ca. 80 participants).

- Marta Chinnici [ENEA]. **DataCloud Europa 2015. In Monaco. Global Congress & Exhibition.** DC4CITIES metrics results were included in my presentation. 2-4 June 2015 (more than 200 participants). [http://www.datacloudcongress.com/](http://www.datacloudcongress.com/)


- Hermann de Meer [UNI PASSAU]. **Renewable Power Supply: Smart or Risky?** 13.07.2015. (Department of Computer Science and Automation) Indian Institute of Science (ca. 10 participants during the presentation. A video recording was made, but no number of distribution about the talk is available).

- Sonja Klingert [UNIMA]. **DC4Cities: Following the Patterns of Renewable Power in a Smart City.** 14.07.2015. Introduction to DC4C as organizer of E²DC 2015 (ca. 30 participants) (ca. 30 participants).


### III.2.6. Brochures and Posters

Dissemination activities like brochures, posters and press releases are used to increase project visibility among actors in the energy and data centre market, but also to create interest within research communities and industrial companies. The long term intention is to find data centre management companies as possible candidates for implementing the data centre side of the DC4Cities project, but also public administration personnel that takes an interest in turning their city into a Smart City.

Brochures are created and distributed to show the highlights of the project in a simple and schematic way. Posters are created for specific purposes to show in different fairs and conferences. The level of dissemination activity in this sector is measured by quantitative numbers regarding distributed brochures or poster presentations.

**The targets are:**
- More than 500 distributed brochures
- More than 5 poster presentations per year
- More than 10 hits on our website per month through QR-Codes

**The following numbers were reached in the first two periods:**
- Ca. 150 - 200 brochures were distributed in several events (E²DC 2014 in Cambridge (UK), ACM e-Energy 2014, Smart City Expo World Congress 2014 (Barcelona), E²DC 2015 in Bangalore (India), BICCNET conference (Munich)) and given out in talks, presentations and for guests.
- 4 poster presentations
- Unknown number of website hits per month through QR-Codes (this feature is not installed).
For additional information about the first period, please see D8.2. The accepted posters for the second period are listened below:


- Andrea Quintiliani [ENEA], Marta Chinnici [ENEA], Davide De Chiara [ENEA]. Poster for SET_PLAN Conference 2015. 30.06.2015. Adaptive Renewable-powered Data Centres: First results from the DC4CITIES Project. It will be presented in Luxemburg on September 21-22 (ca. 800 participants).

- Corentin Dupont [CREATE-NET], DC4Cities: Better Usage of the Renewable Energy in Data Centres. Poster will be presented in ICT4S conference, 7-9 September 2015 on university of Copenhagen, Denmark.

### III.2.7. Press releases and online articles

Press releases and online articles are channels to inform the press on milestones and activities of the project DC4Cities. Online articles are in our terms a special case of press releases. The used metric is also based on numbers like the amount of published press releases and online articles.

#### The targets are:

- At least 3 press releases per partner (partners in the same location provide common press releases)
- More than 25 press articles per year

#### The following numbers were achieved in the first period:

- 11 press releases
- 4 online articles

#### The following numbers were achieved in the second period:

- 3 press releases
- 9 online articles

For the first period, please see D8.2. The results for the second period are listened below:

### III.2.7.a.1. Press releases

- Hermann de Meer [UNI PASSAU]. There may be dramatic changes in the energy supply model on the horizon. 23.12.2014. Campus Passau das Magazin der Universität Ausgabe 03/2014 - die digitale Herausforderung, S.22


- Sonja Klingert [UNIMA]. Smart City - die intelligente Stadt. 01.04.2015. In Forum 1/2015, p. 12 (publication of University of Mannheim press department)

### III.2.7.a.2. Online articles

III.2.8. Online activities

The website http://www.dc4cities.eu has been established starting from the beginning of the project. It provides internal support and project visibility to others. It gives an overview on the project, names the partners, provides a download section for publications and public deliverables of the project, shows current events and gives an overview on the current status of the project. Additionally, a blog was created which describes several contributions from DC4Cities, events, but also project meetings (PMB meetings).

Besides the website, DC4Cities has presence also on professional social networks. A Twitter account and a LinkedIn group are maintained from the beginning of the second period as public communication channels.

Under the topic of online activities, web presence, social network activities and promotional videos are combined. Online media is used to get in contact with the online community by providing content which is available for the general public. The objectives are creating interest within the research community and in industrial companies, but also creating long-term interest in methods and insights of DC4Cities.

Target groups are heterogeneous, starting from participants on the energy market, over DC management companies to academic communities like researchers and research institutions.

Depending on the particular dissemination activity, different metrics are used to measure the impact.

III.2.8.a. Website

For the DC4Cities project, a website was created by Freemind, which is accessible via http://www.dc4cities.eu. The website started with general information about the project, the consortium and deliverables of the project. Until the end of the second period, the website was extended by a blog, several publications and event pages.

In the previous deliverable D8.2, no information regarding statistics of the DC4Cities website were available, because Google Analytics was configured at the beginning of the second period of the project. Therefore, only numbers for the second period are available (website and social media activity).
The success of the website is measured by the number of hits and the reached number of downloads.

**The targets are:**

- More than 100 hits per month
- More than 10 downloads per month

**In the first two periods, the following numbers were reached:**

- > 10,000 hits on our webpage
- > 1,300 downloads

In the end, the overall number of hits on our websites and downloads are the relevant information. Therefore, the monthly numbers were combined.

The following two subsections give a more detailed explanation and background on these topics and information.

**III.2.8.a.1. General overview**

All data are available from the end of September 2014, a couple of months before a new version of the website was released including a blog for publishing news about the project, its activities and related events. Figure 4 shows that within this period (October 2014 – August 2015) there were more than 6,000 sessions initiated by up to 4,800 users (23% were returning visitors) and near 11,000 pages were visited, that is, an average close to 2 pages per session.

From Figure 4 it can be stated that in October 2014, while the number of sessions was quite low (123 sessions) the bounce rate was a bit high (77%). This means that DC4Cities website wasn’t catching a large number of users yet and that those that reached the website left it too soon, without engaging with the content.

In November 2014, when the new version was published (and Analytics was not working those days due to the change), a slow but continuous growth can be seen in Figure 4. After three months, there were 850 sessions (only in March) with a bounce rate of 72%. This number has been quite stable until June, when there were up to 1,300 sessions, though this is not a significant number as the bounce rate is quite high (87%) in part due to those users looking for information about the E²DC conference (360 sessions). In July, there were 1,250 sessions again, but with a lower bounce rate (73%), that means a large number of users visiting the website but also not leaving it too early.
III.2.8.a.2. Landing Pages

Landing pages are relevant to be analyzed because they show us what users were looking for when they arrived to DC4Cities website. The 10 pages in Figure 5 caught user's attention the most during the second period (Sept. 2014 - August 2015). To generate this figure, pages with a bounce rate greater than 75% haven’t been included. Thus, only those pages that really got users’ attention are being counted.

<table>
<thead>
<tr>
<th>Landing Page</th>
<th>Acquisition</th>
<th>Behaviour</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>% New</td>
<td>New Users</td>
</tr>
<tr>
<td></td>
<td>Sessions</td>
<td></td>
</tr>
<tr>
<td>/en/</td>
<td>54.56%</td>
<td>1,906</td>
</tr>
<tr>
<td>(not set)</td>
<td>56.61%</td>
<td>856</td>
</tr>
<tr>
<td>/en/dc4cities-among-the-prototyping-barcelona-projects/</td>
<td>45.65%</td>
<td>21</td>
</tr>
<tr>
<td>/en/masonry-blog/</td>
<td>17.65%</td>
<td>6</td>
</tr>
<tr>
<td>/en/downloads/</td>
<td>16.87%</td>
<td>4</td>
</tr>
<tr>
<td>/en/dc4cities-in-the-dcd-conference-madrid-2015/</td>
<td>60.00%</td>
<td>12</td>
</tr>
<tr>
<td>/en/3rd-smart-city-cluster-workshop/</td>
<td>31.25%</td>
<td>5</td>
</tr>
<tr>
<td>/en/members-of-dc4cities-at-the-data-cloud-congress/</td>
<td>42.86%</td>
<td>6</td>
</tr>
<tr>
<td>/en/our-new-metrics/</td>
<td>35.71%</td>
<td>5</td>
</tr>
<tr>
<td>/en/5th-dc4cities-project-management-board-meeting-at-inria/</td>
<td>92.31%</td>
<td>12</td>
</tr>
</tbody>
</table>

Figure 4: Numbers of our website from September 2014 to August 2015.

Figure 5: Shows the 10 most visited landing pages.
From Figure 5 it can be observed that as in the majority of websites, DC4Cities homepage is the most visited page. As it is explained at Marketing Land¹ “for the majority of websites, it typically receives more than 50% of all visitor traffic”. For DC4Cities, it’s the 85% of sessions, but with an average bounce rate of 50% and near to 3 pages seen per session, this is a good indicator to guess that users found relevant information there.

Besides homepage, most common landing pages are those that have been updated, which provide fresh information on tasks completed (like new metrics, first trials results…) or activities where DC4Cities has participated (congresses, meetings,…).

Thus, blog pages are frequently an entrance point for users, who reach them via direct², referral or organic traffic, as can also be seen in Figure 6. As upcoming and done activities are being explained through the blog and shared via social networks, these blog pages have attracted

<table>
<thead>
<tr>
<th>Landing Page</th>
<th>Traffic Type</th>
<th>Acquisiton</th>
<th>Behaviour</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Sessions</td>
<td>% New Sessions</td>
</tr>
<tr>
<td>1. /</td>
<td>referral</td>
<td>1,633 (24.8%)</td>
<td>95.83%</td>
</tr>
<tr>
<td>2. /</td>
<td>direct</td>
<td>1,307 (10.87%)</td>
<td>97.83%</td>
</tr>
<tr>
<td>3. /en/</td>
<td>direct</td>
<td>1,210 (16.38%)</td>
<td>68.26%</td>
</tr>
<tr>
<td>4. /en/2015/</td>
<td>direct</td>
<td>797 (12.11%)</td>
<td>73.79%</td>
</tr>
<tr>
<td>5. /en/2015/</td>
<td>organic</td>
<td>274 (4.18%)</td>
<td>42.34%</td>
</tr>
<tr>
<td>6. /en/</td>
<td>referral</td>
<td>218 (3.31%)</td>
<td>25.69%</td>
</tr>
<tr>
<td>7. /en/pepa_jen3272</td>
<td></td>
<td>214 (3.28%)</td>
<td>85.05%</td>
</tr>
<tr>
<td>8. /en/</td>
<td>organic</td>
<td>130 (2.07%)</td>
<td>6.15%</td>
</tr>
<tr>
<td>9. (not set)</td>
<td>referral</td>
<td>87 (1.32%)</td>
<td>100.00%</td>
</tr>
<tr>
<td>10. /www guardar.org/2015/</td>
<td></td>
<td>39 (0.63%)</td>
<td>100.00%</td>
</tr>
</tbody>
</table>

Figure 6: Shows the different type of traffic (direct, referral, organic)

many visitors to the website. As can be observed in Figure 6, a half of these pages are the blog homepage or blog entries. The main page is visited mostly in a direct way, but also referral and organic.

If referral traffic is explained in detail, including the social network dimension (see Figure 7), it can be stated that users reaching the DC4Cities website from social networks were more engaged to content than those coming from other sources. Figure 6 shows sessions by any kind of traffic, users visited an average of 3 pages per session and they spent an average of 4 minutes on the DC4Cities website. If only traffic from social networks is considered (see Figure 7), then these values are 6 pages per session and 12 minutes per session.

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¹ [http://marketingland.com/your-homepage-is-the-landing-page-65502](http://marketingland.com/your-homepage-is-the-landing-page-65502)

² Direct traffic means, most times, that the visitor typed the website address directly into the browser, but not always. Referral includes visitors that arrived following links on other websites, and this category includes social media. Finally, organic refers to traffic that arrives to the website from unpaid search engine. More details are available at [http://analytics.blogspot.com.es/2009/08/back-to-basics-direct-referral-or.html](http://analytics.blogspot.com.es/2009/08/back-to-basics-direct-referral-or.html)
As mentioned previously, during the first months of the second period a blog page has been created on the DC4Cities website. The intention of the blog is to highlight information about events, talks or project meetings and contribute the most important news about the project. Figure 8 is a snapshot of DC4Cities blogs current status, with up to 20 entries published.

**Figure 8 Blog entries on our website**
The blog posts from Figure 8 are listed and linked below:


**III.2.8.c. Social network activities / Social media**

Monitoring social traffic is important, as it shows how the project DC4Cities is noticed on social networks and which interaction users had with the DC4Cities website and social profiles. The
use of social media not only opens a new window to the digital world but also an opportunity 
to disseminate the project and communicate with stakeholders without an economical 
investment in advertising or paid traffic. The DC4Cities project is using social networks with a 
professional objective, as Twitter and LinkedIn. Though these social profiles have been the 
main social channels used by DC4Cities, some partners have used also their own social 
network accounts to disseminate the project. This is the reason why some traffic has arrived 
to DC4Cities website through, for example, Facebook (27 sessions with a total of 35 pages 
seen).

To measure the success of the used social network channels, the number of followers on 
Twitter and the number of group members on LinkedIn are monitored. It is also important to 
take into account interaction with our website through these channels.

The targets are:

- More than 250 followers and LinkedIn group members
- More than 100 likes, mentions, and retweets per year

The following numbers were achieved in the first two periods (values are from July 2014 
to August 2015):

- 57 followers on Twitter
- 32 favorites on Twitter
- 32 mentions
- 35 retweets
- 39 LinkedIn group members
- 48 likes on LinkedIn

It has to be taken into account that Twitter and LinkedIn accounts didn't start directly with the 
project and over time.

The following subsections about Twitter and LinkedIn give a more detailed explanation about 
the social network activity.

**III.2.8.c.1. Twitter**

Though the Twitter profile\(^3\) was ready by the end of September 2014, DC4Cities’ first tweet 
was in October 2014. From then on, up to 40 tweets have been sent with more than 15,000 
impressions, that is the number of times users (not only followers) saw these tweets.

Beyond these quantitative metrics, what is relevant is the number of interactions. The reason 
is that every single interaction means that a user was interested in getting further information 
and clicked a link, or was curious about the project and visited the DC4Cities Twitter profile, or 
gave a favorite to that tweet. From Twitter alone, the DC4Cities website received 136 sessions, 
and 746 pages viewed (an average of 5.5 pages per sessions during an average of 12 
minutes).

In total, from October 2014 to July 2015, the DC4Cities Twitter profile had up to 1,300 
interactions, that’s profile visits, mentions, link clicks, retweets, favorites and replies. Numbers 
from October 2014 are shown in the following table (Figure 9).

\(^3\) [https://twitter.com/DC4Cities](https://twitter.com/DC4Cities)
The DC4Cities LinkedIn group has been active during the 10 months, with 38 people following it. In this period, there have been 16 posts published, receiving 48 likes and 8 comments. The DC4Cities website has received 48 sessions, with 282 pages viewed on average (6 pages per session during 11 minutes on average).

Figure 9: Shows the different numbers from Twitter

III.2.8.c.2. LinkedIn

During the 10 months that the DC4Cities LinkedIn group has been active, it has been followed by 38 people. Throughout this period, members have published 16 posts which have received 48 likes and 8 comments. From LinkedIn, DC4Cities website has received 48 sessions, which are 282 pages viewed (an average of 6 pages per session during an average of 11 minutes).

Figure 10: Shows an excerpt of a LinkedIn entry.

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Tweets</td>
<td>7</td>
<td>6</td>
<td>0</td>
<td>1</td>
<td>3</td>
<td>2</td>
<td>13</td>
<td>3</td>
<td>6</td>
<td>4</td>
<td>0</td>
<td>45</td>
</tr>
<tr>
<td>Tweet impressions</td>
<td>845</td>
<td>1.007</td>
<td>444</td>
<td>395</td>
<td>798</td>
<td>1.243</td>
<td>3.310</td>
<td>2.391</td>
<td>2.307</td>
<td>1.707</td>
<td>937</td>
<td>15,384</td>
</tr>
<tr>
<td>New followers</td>
<td>4</td>
<td>3</td>
<td>1</td>
<td>10</td>
<td>10</td>
<td>2</td>
<td>9</td>
<td>2</td>
<td>18</td>
<td>8</td>
<td>6</td>
<td>73</td>
</tr>
<tr>
<td>Profile visits</td>
<td>55</td>
<td>17</td>
<td>77</td>
<td>56</td>
<td>101</td>
<td>309</td>
<td>227</td>
<td>183</td>
<td>163</td>
<td>190</td>
<td>54</td>
<td>1,432</td>
</tr>
<tr>
<td>Mentions</td>
<td>1</td>
<td>5</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>5</td>
<td>3</td>
<td>6</td>
<td>6</td>
<td>2</td>
<td>33</td>
</tr>
<tr>
<td>Engagement rate</td>
<td>0,9</td>
<td>1,1</td>
<td>0,4</td>
<td>0,1</td>
<td>0,5</td>
<td>2,1</td>
<td>0,6</td>
<td>1,1</td>
<td>1,0</td>
<td>0,8</td>
<td>0,0</td>
<td>0,8</td>
</tr>
<tr>
<td>Link clicks</td>
<td>6</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>8</td>
<td>9</td>
<td>6</td>
<td>5</td>
<td>8</td>
<td>0</td>
<td>47</td>
</tr>
<tr>
<td>Retweets</td>
<td>5</td>
<td>7</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>3</td>
<td>8</td>
<td>0</td>
<td>7</td>
<td>1</td>
<td>0</td>
<td>35</td>
</tr>
<tr>
<td>Favorites</td>
<td>2</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>1</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>4</td>
<td>0</td>
<td>32</td>
</tr>
<tr>
<td>Replies</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>11</td>
<td></td>
</tr>
</tbody>
</table>
III.2.8.c.3. LinkedIn Blogs

Please find listed some excerpts of the LinkedIn blog entries:

- Teresa Via [CSUC]. **4th technical meeting in Rome.** 13.05.2015. [https://www.linkedin.com/group/post/8186150-6004191329356169219](https://www.linkedin.com/group/post/8186150-6004191329356169219)

Please find all LinkedIn blog entries by using the following link: [https://www.linkedin.com/grp/home?gid=8186150](https://www.linkedin.com/grp/home?gid=8186150)

III.2.9. Promotional videos

For the project DC4Cities a project related video was produced from the University of Passau. The video explains the background of the project and is about four minutes long. Some members of the DC4Cities project are included into the video as interview partners. The success of the video will be measured by the number of views. It will be used to disseminate the project over channels like YouTube, social media, talks and presentations in a compact and easy way.

The targets are:

- 100 hits per year (at least for 2015) trying to reach 150 hits for the last period with final results.

The video will be published in September 2015 for the first time, therefore no numbers for the first two periods are available.

III.2.10. Educational uses of DC4Cities / Teaching

Another important part of dissemination are uses of DC4Cities in an educational way. The gained knowledge in the project of DC4Cities and related topics (e.g. energy efficiency and smart grid) can be used to improve and change knowledge, skills, values, beliefs and habits of academics and young scientists (in special bachelor, master and PhD students). A deeper insight in the topics of Smart Grids, Smart Cities and data centre energy efficiency can be provided. In terms of the partners of the project, educational uses are, e.g., bachelor and master thesis, but also seminars and lectures of universities or comparable institutions.

It will be measured by the number of courses (**courses = lecture units or seminar units**) seminars, bachelor and master thesis and also PhD students which performed on their theses.
A course is a lecture unit of a complete lecture series.

The determined targets are:

- 5 DC4Cities related courses (lecture units or seminar units)
- 5 to 10 bachelor or master thesis per year
- About 5-10 PhD students should have performed on their PhD theses in relation to DC4Cities.

In the first period, the following numbers were achieved:

- 2 lecture series (with several lecture units related to the topics of DC4Cities in particular energy efficiency and virtualization)
- 1 seminar
- 6 bachelor thesis

In the second period, the following numbers were achieved:

- 2 lecture series (with several lecture units related to the topics of DC4Cities in particular energy systems, virtualization and reliable client-server communication)
- 2 bachelor thesis
- 3 master thesis
- 1 practical course (EVS – Engineering of Networked Systems) about flexible load management in data centers to foster renewable power consumption.
- 1 seminar

The following PhD students have performed on their PhD thesis in relation to DC4Cities during the project:

- Florian Niedermeier (University of Passau), Wolfgang Duschl (University of Passau), Ammar Alyousef (University of Passau), Gergő Lovasz (University of Passau), Thomas Schulze (University of Mannheim), Torben Möller (University of Mannheim) and Corentin Dupont (Create-Net)).
- Andreas Berl (University of Passau) and Robert Basmadjian (University of Passau) researched on habilitation thesis during course of DC4Cities. Andreas Berl was awarded with a professorship.

Additionally, the topic of DC4Cities was discussed with a lot of visiting researches and stakeholders. For more information, please see section VI.1 in D8.4, where the educational uses of DC4Cities are described in more detail.

**III.2.11. Cooperation with other projects**

DC4Cities stands in cooperation with the Smart City Cluster, which was created by the EC and several EU projects on data centres with the goals to find methodologies for measuring environmental efficiency metrics for data centres as well as to collaborate with standardization bodies to establish an internationally recognized set of KPIs, metrics and methodologies for DC behaviour assessment.
• 6 FP7 Projects from the Call on Data Centres Sustainability: DC4Cities, RenewIT, Dolfin, GENiC, GEYSER & GreenDataNet, aiming to increase renewable energies use, heat reuse and the utilization of Smart Grids;
• 2 projects from a previous FP7 Call: All4Green, CoolEmAll;
• 1 H2020 project on public procurement of sustainable data centers (EURECA)

Eight FP7 projects and one H2020 project, one of them being DC4Cities, have combined efforts to form a 60 partner global cluster aiming to develop new environmental efficiency metrics and methodologies to be used to measure common variables, compare results and collectively support standards development.

The EURECA project has recently joined the Cluster, in March 2015.

The Cluster has structured its work in a series of tasks. The report on the Cluster’s Task 3 is publicly available, in which new metrics or modifications to existing ones to evaluate flexibility, savings and renewable integration in DCs are introduced. The first published results of the cluster can be found using the following link:

Moreover, the Task 4 report, which describes application methodologies of a set of metrics selected by the different projects, has also been published by the EC.

III.2.12. Other activities

Besides the already mentioned dissemination activities, other dissemination activities were performed, which couldn’t be assigned directly to the set goals. For the sake of completeness, these activities are also mentioned.

• María Pérez [FM]. Participated in a round table during the DCD CONVERGED conference, Madrid, Spain. 09.04.2015.
• Marta Chinnici [ENEA] was participant at the technical programme committee on the E²DC Workshop 2015: 4rd International Workshop on Energy-Efficient Data Centres. 14.07.2015
• Wolfgang Duschl [UNI PASSAU], Ammar Alyousef [UNI PASSAU]. Participants on the “BICC-Conference Innovation Forum Digitalisierung”. Talked with some of the experts about DC4Cities. General discussions. 21.04.2015. Tuesday, 21.04.2015 in Munich, Germany

III.3. Graphical representation of dissemination activity per partner

The different kinds of the most important dissemination channels and the activities of each partner are shown in the following graphs. It has to be taken into account, that more than one partner can work on the same dissemination activity (e.g. paper, poster, etc.). The graphics include the results of the first two periods and presents the distribution of dissemination activities by partners.

III.3.1. CREATE-NET
III.3.2. CSUC

![Reached Numbers Diagram for CSUC](image1)

- Talk external: 2; 7%
- Article online: 2; 8%
- Article press: 2; 8%
- Blog: 20; 77%

III.3.3. ENEA

![Reached Numbers Diagram for ENEA](image2)

- Article press: 1; 11%
- Workshop paper: 1; 11%
- Other publication: 1; 11%
- Article online: 2; 22%
- Poster: 1; 11%
- Talk external: 3; 34%

[Images of diagrams showing reached numbers for different publications and dissemination methods]
### III.3.4. FM

![Reached Numbers FM]

### III.3.5. GN

![Reached Numbers GN]
III.3.6. HP

Reached Numbers

III.3.7. IMI

Reached Numbers
III.3.8. INRIA

Reached Numbers

- Journal paper; 1; 20%
- Conference paper; 2; 40%
- Workshop paper; 1; 20%

III.3.9. UNIMA

Reached Numbers

- Article press; 3; 22%
- Journal paper; 2; 14%
- Conference paper; 2; 14%
- Poster; 1; 7%
- Workshop paper; 1; 7%
- Talk external; 4; 29%
- Other publication; 1; 7%
III.3.10. UNI PASSAU

![Pie chart showing reached numbers for different types of publications.

- Journal paper: 2; 7%
- Conference paper: 1; 3%
- Workshop paper: 1; 4%
- Other publication: 1; 4%
- Talk internal: 5; 18%
- Talk external: 13; 46%
- Article online: 1; 4%
- Article press: 4; 14%]
IV. SUMMARY AND OUTLOOK

This deliverable gave a short summary of the reached dissemination activity in the first period (Sep. 13 – Aug. 14), a detailed overview about the dissemination activities in the second project period (Sep. 14 – Aug. 15) and the dissemination objectives, target groups, goals and metrics. A comparison between already reached and outstanding goals gives an overview about what has been done already and where not yet all is finished.

During the first two periods a lot of the required dissemination goals could be fulfilled (industrial conferences, internal and external dissemination, workshops, etc.). Besides this fact the dissemination activities increased especially in the second period. Nearly all goals are on a good way to reach the required numbers until the end of the third period.

However, there are some set goals which are probably not reachable during the last six month. The number of followers on Twitter and the LinkedIN group members are only a fraction of the desired values. The required 30 papers in journals, workshops and conferences may be overstated.

For the last six months the project consortium plans to intensify the efforts in the parts were the project goals are not yet completely fulfilled. To achieve the required number of press releases, one press release will be set up, translated to the different languages of the partners and published. It will be also tried to increase the number of blog articles until the end of the project.

At least one lecture with a DC4Cities related topic will start during the winter semester 2015/2016 and it is planned to start additional Bachelor and Master Theses.

The project video will be strongly used to disseminate the DC4Cities project not only in YouTube and social media channels, but also in talks, presentations and participations in workshops and conferences.

The results of the second trials will be used for additional papers, posters, talks, articles and blogs to disseminate the project results and use the goals to address further researchers, industrial partners and participants on the energy market.