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Report on Dissemination Activities, Public Participation and Awareness (Year 2)

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List of Definitions & Abbreviations

Abbreviation	Definition
EC	European Commission
EU	European Union
IoT	Internet of Things
WP	Work-Package
DoA	Description of Actions
CFP	Call For Paper
DC	Direct Current
OPGW	Optimal Power Ground Wire
D.A.R.	Dissemination Activity Report
DG RTD	Directorate-General for Research and Innovation
H2020	Horizon 2020 Research and Innovation Programme
KPIs	key performance indicators

1. Executive Summary

The present document is deliverable “D9.9 – Report on Dissemination Activities, Public Participation and Awareness (year 2)” of the VICINITY project (Grant Agreement No.: 688467), funded by the European Commission’s Directorate-General for Research and Innovation (DG RTD), under its Horizon 2020 Research and Innovation Programme (H2020).

The document introduces the VICINITY project dissemination activities, dissemination activity plan, national and international publications that are conducted to guarantee the high visibility, accessibility of the project and its results during the grant period. D9.9 will be a conclusion of the past dissemination activities, public participations and scientific and technical publications, meanwhile presenting the impact of these dissemination activities. It will be updated and adjusted as the project progresses.

In order to achieve the highest possible impact of its activities, VICINITY will focus on maximising the effectiveness and scope of its dissemination activities and public participations. These specific activities will not only address the general public to raise awareness on the project and its achievements, but also target key stakeholders having a relevant role in the field of activities undertaken by the project.

The VICINITY D9.9 has been structured in various sections presenting the 2017 dissemination activities, 2018 dissemination activity plan, scientific and technical publications and achievements.

2. Introduction

Work-Package 9 (WP9) “Dissemination of Results & Exploitation” as described in the VICINITY Description of Actions (DoA) aims at increasing the impact of the project through the wide dissemination of project outcomes and the intense communication of its achievements and activities towards each of the project target groups.

The specific objectives of the Work Package include:

- Formulating and implementing a global dissemination strategy based on the draft Dissemination and Exploitation Plan;
- Monitoring and ensuring the consistency of all external activities of the project;
- Organizing the planned project events and ensuring maximum participation and impact;
- Running training workshops for Science Gateway and other e-Infrastructure services’ development;
- Showcasing key developments in these areas to communicate the benefits of these technologies to stakeholders;
- Delivering three VICINITY workshops and a final conference;
- Regularly examining and updating the project exploitation perspectives.

VICINITY deliverable “D9.9 - Report on Dissemination Activities, Public Participation and Awareness (year 2)” presents the achievements of T9.3:

- Coordination the dissemination activities of project results to the international scientific and technical community as well as to the addressed VICINITY stakeholders;
- Promotion of the project during events (conferences, workshops, invited talks, seminars, etc.);
- Paper submission to national and international conferences, workshops, journals; Preparation of Call For Paper (CFP);
- Project demonstrations;
- Preparation of pre-commercial and commercial brochures and technical Newsletter to potential industrial and scientific users;
- Presenting the key outcomes and the progressions received during these activities;
- Providing useful input for further adopting and updating the project planning towards better meeting stakeholders’ needs;
- Improving the visibility of the VICINITY project outcomes.

3. Dissemination strategy and implementation

VICINITYs will expand on previous dissemination strategies in order to even better communicate and engage stakeholders. The stakeholders may be IoT developers and integrators, stakeholders and civil society at large. The aim of the dissemination is to inform about objectives, activities and findings from the project.

VICINITY has developed a communication strategy that pursues the following objectives:

- Raise public awareness and ensure maximum visibility of the project key facts, objectives, activities and findings;
- Announce and promote VICINITY events, contributing to upgrade its attendance and engagement potential;
- Inform about open calls, objectives and potential, increasing attention and number of proposals from stakeholders.
- Support the dissemination objectives.

3.1. Dissemination strategy

The proper definition of dissemination within the field of communication, means the process of broadcasting a message to the public without direct feedback from the audience. In the case of VICINITY, the target audience/stakeholder can be considered any person, university, agency, institution, or company that is interested in the project or will be affected by the project outcomes.

VICINITYs Dissemination Strategy is based on activities to raise awareness and increase the visibility of the project. Furthermore, the strategy strives for successful dissemination for knowledge and understanding about the project outcomes to all stakeholders and public. Finally, the aim is also to disseminate for action, to generate opportunities for stakeholders to act and get involved in the projects outcomes. Best practise from other projects have demonstrated that success comes from including everyone in practical activities, not just focus on awareness with no engagement.

These actions must be developed and conducted in times, places, regularly and modalities suitable to allow the broadest diffusion.

The objectives of the dissemination activities will be to:

Plan	Identify targets, messages, tools, and channels. Build an adequate and effective communication and dissemination plan to ensure the best impact of project results.
Design	Produce dissemination tools: design a comprehensive set of communication material (including the project logo) to ensure an easy identification of the project and a major exposure.
Distribute and represent	Use the dissemination channels (both internal and external).
Activities	Organise project events and participate in workshops, conferences, and international/EC meetings.
Sustain	Ensure a persistent and long-lasting visibility of the project activities and outcomes.

Table 1. Objectives of dissemination activities covers the entire lifecycle of the project

Consequently, dissemination activities will maximise VICINITY's impact on prompting dialogues, cooperation and coordination with decision makers, developers, integrators, administrators, end users and establishing connections between European partners.

In order to create a proper understanding of topics to disseminate, the core values of VICINITY needs to be reduced to a few sentences with relevant keywords. The general message will be adjusted depending on the intended target group;

- One non-technical for simple communication and an overall understanding of the goals of the project.
- Another for a technical audience where a better grasp of the concept and opportunities the project provides will be central.

What approach which will be used depends on the arenas where the dissemination activities will take place.

3.2. Dissemination implementation

VICINITY will produce a wide area of outputs and results. The dissemination activities will present results from pilot sites, the state of technical integration, standardisation processes, value-added services, and opportunities related to open calls. Additionally, privacy legislations, activities related to IoT EPI and related projects alongside other ongoing efforts, will be an integral part of explaining where VICINITY belongs in the landscape and how the project will tie together and expand on ecosystems.

The dissemination implementation mainly depends on which kinds of outputs VICINITY have and what expectations of impact that fuels the actions that will be taken.

A number of dissemination channels and tools are considered for VICINITY dissemination implementation.

- Events: project events, project workshops, external events, EU parliament events, exhibitions.
- Publications: scientific publications, conference proceedings, event presentations, deliverables, project videos, press releases, newsletters.
- Online presence: VICINITY website, social media, research blog, videos, related websites.
- Dissemination material: leaflets, posters, reference PPTs, invitation letters, brochures.

WP9 leader is responsible for dissemination resources collection, dissemination channels and tools establishment and maintenance. Another important task is the coordination of dissemination activities of project results to the international scientific and technical community. These activities sets out to improve on awareness and visibility about the project objectives and outcomes with VICINITY stakeholders and public audience.

All partners need to contribute to dissemination activities in order to reach out to the target audience. Dissemination activity information will be collected and distributed periodical through emails, tables, dissemination activity reports, bi-weekly meetings, feedbacks from project consortiums, VICINITY Web portal and Nextcloud information sharing.

4. Dissemination activities for M13-M24

4.1. Public participation

During M13 to M24, VICINITY partners have used their public participations in various channels to guarantee high visibility, to expand the accessibility to the VICINITY project and its results, as well as to facilitate knowledge sharing, personal interaction, and community building with targeted audiences.

Some types of channels targeted by the project were:

- External events
- Conferences
- Workshops
- Invited talks
- Seminars
- Congresses
- Forums
- Webinars

Public participation is reported by a Dissemination Activity Report (D.A.R.) which consists on the following sections.

- Event Details
- Scope of the Event
- Description of the participation
- Other questions received
- Audience Reached
- Feedback
- Photos
- Event Program
- Useful Links

Please refer to D9.9 Additional Annexes - Dissemination Activities Reports 2017 DARs for details regarding dissemination activities and public participation.

A list of public participations where the project has already been presented during M13 to M24 together with its corresponding contribution to VICINITY is shown below:

	Type of Event	Participants	Contribution	Type of Audience	Place and date
1	Workshop	CAL	CAL participated in SSCC-CG as a representative of ETSI. The role of VICINITY in IoT standards was highlighted and interest was shown in a future presentation by VICINITY on activities relevant to Smart Cities.	Industry General Public Policy makers Investors	January 17 Brussels Belgium
2	Workshop/ Meeting	CAL	CAL made 2 contributions on behalf of VICINITY:	Industry Policy makers	February 9-10

			<p>CIM(17)001015: Smart Cities Architecture & Reference Models.</p> <p>CIM(17)001016: Interoperability Approach based on Discovery using Ontologies.</p> <p>Much interest was shown in the work of VICINITY as it is very relevant to the scope of ISG CIM, especially the semantic ontologies and SAREF extensions work and the use of the W3C WoT approach and APIs.</p>	Investors	Sophia Antipolis France
3	Workshop	CAL, UNIKL	<p>Representatives from CAL and UNKL made a joint presentation introducing VICINITY. At the final plenary meeting of SG20, three new recommendations were given consent (see full report in the corresponding DAR) and will be available when the SG20 meeting report is published by ITU-T.</p>	Scientific Community Industry Policy makers Civil Society	March 12-27 Dubai United Arab Emirates
4	Meeting/ Workshop	CAL	<p>The role of VICINITY in IoT standards was highlighted and interest was shown in a future presentation by VICINITY on cross-domain use cases relevant to Smart Cities.</p>	Industry Civil Society Investors Policy makers	March 24 Brussels Belgium
5	Workshop	UNIKL	<p>The Q&A Session following the presentation was showing quite some interest in VICINITY. Questions were asked by people from academics, mostly interested in the cross-domain solution VICINITY offers and how potential use-cases could look like. Security experts showed some concern as an attacker, who is able to compromise the Virtual Neighbourhood could potentially access all attached devices.</p>	Scientific Community Industry Policy makers Civil Society	March 28 University of Applied Sciences, Magdeburg
6	Meeting/ Workshop	CAL	<p>Keith Dickerson (CAL) participated as a member of the ETSI Board. The VICINITY project was promoted during the associated AIOTI WG03 event where an attempt was made to include USED and CECED (identified as important by VICINITY D2.1) in the AIOTI Standards Landscape.</p>	Scientific Community Industry Policy makers	April 6 2017 Sophia - Antipolis France
7	Press release /Exhibition /trade fair	UNIKL	<p>Representatives from domains, which VICINITY addresses with its demo sites were very pleased with the idea and concept. They confirmed, that the VICINITY solution is feasible for them and tackles the exact problems people are currently facing when connecting all “Things” in their respective field.</p>	Scientific Community Industry General Public	April 24- 28 Hannover Messe
8	Webinar	HITS	<p>Lessons learned – how to engage with target audience and to generate traffic and marketing perspectives for VICINITY.</p>	Scientific Community	May 9, 2017
9	Workshop/ Press release/ Website	MPH	<p>Guests and participants had the opportunity to visit municipality’s booth and to be informed about municipality’s smart applications and Projects, among them the VICINITY project. People were able to watch a short slide</p>	Scientific Community General Public Policy makers IT companies	May 12-14 Athens Greece

			presentation about VICINITY (in Greek) and get more information from the VICINITY leaflets.		
10	Pitch Event/ Poster	HITS GNOMON	It's a very good suggestion of topics to be included in the pHealth Conference, either as tutorial, or special session or keynote speeches. Big Data and analytics combined with decision intelligence could be combined and driven by user and market needs.	Scientific Community Policy Makers	May 14-16 Eindhoven Netherlands
11	Exhibition Flyers Social media Website Trade fair Roll-ups	ENERC	Several involved companies and municipalities which raised increased interest in the "VICINITY virtual Neighbourhood" concept for allowing IoT interoperability in cross-domains solutions. The envisioned value-added services were a point of discussion. Interest was shown from the application-development scope. Some of potential stakeholders showed interest in participating in the process.	Scientific Community Medias Industry Investors Civil Society Customers General Public Policy makers	May 18–19, 2017 Algarve Portugal
12	Workshop	CERTH	There was positive attitude regarding the scopes of VICINITY and about the installation of corresponding sensors to private houses for the project's purposes. Questions and concerns were discussed regarding the privacy and security of data in this neighbourhood and how VICINITY will overcome these issues.	Scientific Community Industry General Public	16 May 2017 Thessaloniki Greece
13	Workshop	UPM	Lessons-learned from the workshop include: -Need to define security aspects in the ontology, there are other projects and organizations that are interested on that part of the model. -VICINITY is one of the few projects in which ontologies are being published according to the best practices and providing human readable information and examples	Scientific Community Industry	June 5 Rome Italy
14	Conference Exhibition	AAU ENERC ATOS	The participants showed great interest on VICINITY solutions. More specifically, discussions were taken place followed the presentation, regarding semantic web/ontology, P2P mechanisms, architecture, value added services, among others. In addition, the participants also showed great interest on VICINITY upcoming open calls after ENERC presentation in IoT-EPI event.	Scientific Community Industry Police makers	June 06-09 Geneva Switzerland
15	Conference	AAU	A Tutorial: "Advanced Control Architectures for AC and DC Microgrids" and presentation of VICINITY project were presented. VICINITY project was the topic of some interesting discussions and questions mainly focused on the benefits of utilizing IoT devices and platforms to ensure a highly reliable and optimized operation of smart energy systems with the focus on microgrids. Furthermore, integration of Advanced Metering Infrastructure (AMI) which is also called smart metering system with IoT-	Research Scientific Community Industry	June 22 Capri Italy

			enabled systems and the concept and technologies of energy harvesting for supporting IoT sensors have been discussed with the participants.		
16	Conference Exhibition	AAU	The presentation of the paper received very positive feedback and a lot of interest from the audience. More specifically, the participants showed great interest on how VICINITY and IoT can be integrated with microgrids and energy systems. Further discussions were taken place followed the presentation, regarding in microgrid-oriented IoT architecture and value-added energy services.	Scientific Community Industry	June 19-21 Edinburgh Scotland
17	Conference	UPM	The keynote was well received, based on the comments received during the conference. it was highly relevant for part of the audience which lead to discussions on ontological engineering and semantic interoperability in the IoT domain	Scientific Community Industry	July 5 Caen France
18	Event	HITS	The activities that took place at the Arendalsuka was all directly or indirectly tied into tasks and deliverables that are defined in the VICINITY project. The main goals this time were to reach out to decision makers and influencers, alongside universities and potential partners within integration, assisted living and mobility.	Scientific Community Civil Society Policy makers	August 14-18 Arendal Norway
19	Workshop	CAL	During Day 3 during the discussion on “D3.3 Technical Report on Data Interoperability”, Prof Gyu Myoung Lee (KAIST) asked how we can support the semantic discovery of data for interoperability between two organisations with different silos. Think about how VICINITY achieve interoperability. A contribution on how VICINITY can solve the problem of cross-domain data exchange would be very timely for the next meeting which is in Brussels 20-23 February and will be hosted by Martin Brynskov to coincide with a workshop involving European projects.	Scientific Community Civil Society Industry Policy makers	October 20-25 Geneva Switzerland
20	Conference	OTE	Attendees were very interested in VICINITY project, mainly asking questions about a more detailed technical explanation and implementation of the different use cases.	Scientific Community Industry Medias	October 25 Athens Greece
21	Conference	AAU	Organization of a Tutorial: “ <i>The Internet of Energy, are we there yet?</i> ” and presentation of VICINITY project. Questions and concerns were discussed regarding the privacy and security of data in smart homes and e-health domain and how VICINITY will overcome these issues.	Research Scientific Community Industry Civil Society Customers	October 29 Beijing China
22	Organization of a workshop	UPM	The topics of different articles and the panel dealt with several key IoT challenges which are right now under the umbrella of VICINITY	Scientific Community Industry	September 11 Amsterdam Netherlands

			(ontologies, query federation, semantic interoperability approaches).		
23	Conference Exhibition	HITS	Almost all brochures (tri-fold) were distributed, and in-depth discussions were conducted with 7 municipalities with the intention of following up afterwards. Several companies were interested in learning more about VICINITY and the open calls.	Scientific Community Industry Civil Society	September 26-28 Stavanger Norway
24	Event	CERTH	People were able to watch a short slide presentation about VICINITY (in English) as far as Health Domain was concerned and got more information from the VICINITY leaflets. Guests and participants had the opportunity to attend three presentations regarding eHealth domain and discuss trending issues mostly about ethics and privacy issues.	Scientific Community General Public	October 23 Thessaloniki Greece
25	Event	HITS/TINYM	As part of the IoT EPI Nordic Innovation Tour, people were invited to learn more about VICINITY, achievements and opportunities related to open calls. The presentations took place simultaneously in Tromsø and Oslo, with a total of up to 60 key stakeholders attending.	Scientific Community General Public	November 14 Tromsø/Oslo Norway
26	Conference	IS	Unformal presentation of project's idea. Discussions about the integration of various IoT based platforms for Smart cities. Discussions about the best practices for deployment of the Smart cities applications. VICINITY interoperability as a service was recognised as potential added value.	Industry General Public Policy Makers	November 14 Bratislava Slovakia

Table 2. List of public participations where VICINITY project was presented

4.2. Publications derived from VICINITY

During M13 to M24, 7 scientific and technical papers were published on international peer-reviewed journals or specialised magazines and high-ranking international conferences. Publications 1, 6 and 7 are related to the obtained results by considering semantic discovery aspects, drivers, standards and platforms developed in VICINITY. Publications 2-5 correspond to the preliminary research results obtained from IoT-enabled Energy systems.

The types of papers, contributors, paper titles and publication dates are listed as follows:

	Type of paper	Contributors	Title	date
1	International conference	AAU	An Open Virtual Neighbourhood Network to Connect IoT Infrastructures and Smart Objects – VICINITY	June 2017
2	International conference	AAU	An Enhanced Hierarchical Control Strategy for the Internet of Things-based Home Scale Microgrid	June 2017
3	International conference	AAU	Real-Time Energy Management System for a hybrid AC/DC Residential Microgrid	June 2017

4	International conference	AAU	Using Smart Meters Data for Energy Management Operations and Power Quality Monitoring in a Microgrid	June 2017
5	Journal Article	AAU	Efficient energy management for a grid-tied residential microgrid	March 2017
6	Workshop paper	UPM	Semantic Discovery in the Web of Things	June 2017
7	International conference	UNIKL	Drivers, Standards and Platforms for the IoT: Towards a digital VICINITY	Sept. 2017

Table 3. List of scientific and technical papers derived from VICINITY

The detailed publication titles, authors, and main contributions are presented below.

- “An Open Virtual Neighbourhood Network to Connect IoT Infrastructures and Smart Objects – VICINITY”** Global IoT Summit (GloTS-2017), 06-09 June 2017, Geneva, Switzerland. Yajuan Guan, Juan C. Vasquez, Josep M. Guerrero, Natalie Samovich, Stefan Vanya, Viktor Oravec, Raúl García-Castro, Fernando Serena, María Poveda-Villalón, Carna Radojicic, Christopher Heinz, Christoph Grimm, Athanasios Tryferidis, Dimitrios Tzovaras, Keith Dickerson, Marek Paralic, Marek Skokan, Tomas Sabol, Global IoT Summit (GloTS-2017), 06-09 June 2017, Geneva, Switzerland.

 - Vicinity project is introduced in this paper. Concept requirements, barriers, standardization analysis and the contribution “interoperability as a service” are discussed.
- “An Enhanced Hierarchical Control Strategy for the Internet of Things-based Home Scale Microgrid”** IEEE International Symposium on Industrial Electronics (ISIE 2017), 19-21 June 2017, Edinburgh, UK. Yajuan Guan, Juan C. Vasquez, Josep M. Guerrero, IEEE International Symposium on Industrial Electronics (ISIE 2017), 19-21 June 2017, Edinburgh, UK.

 - An enhanced hierarchical control strategy for IoT-based home scale Microgrid is proposed in this paper. The proposed energy framework will be implemented in the IoT MG test laboratory
- “Real-Time Energy Management System for a hybrid AC/DC Residential Microgrid”**, E. Rodriguez-Diaz, E.J. Palacios-Garcia, A. Anvari-moghaddam, J.C. Vasquez, J.M. Guerrero, 2nd IEEE International Conference on DC Microgrids (ICDCM 2017), June 27-29, Nürnberg, Germany, 2017.

 - This paper proposes real-time Energy Management System (EMS) for a residential hybrid ac/dc microgrid. The proposed EMS estimates the RES generation based on the weather forecasting, together with stochastic consumption modelling of the building. The EMS architecture and the residential microgrid have been implemented in a laboratory scale setup. The results shown how the operational costs of the system are effectively decreased by 28%, even with non-accurate estimation of the RES generation or building parameters.
- “Using Smart Meters Data for Energy Management Operations and Power Quality Monitoring in a Microgrid”**, E.J. Palacios-Garcia, E. Rodriguez-Diaz, A. Anvari-Moghaddam, M. Savaghebi, J.C. Vasquez, J.M. Guerrero, A. Moreno-Munoz, The 26th IEEE International Symposium on Industrial Electronics (ISIE 2017), 19-21 June, Edinburgh, Scotland, UK, 2017

 - This paper presents the integration of a commercial advanced metering infrastructure (AMI) in the context of a smart building with an energy management system (EMS). Furthermore, power quality monitoring based on this AMI is explained. All the details regarding the implementation in a laboratory scale application, as well as the obtained results, are provided.

5. **“Efficient energy management for a grid-tied residential microgrid,”** A. Anvari-Moghaddam, J. M. Guerrero, J. C. Vasquez, H. Monsef and A. Rahimi-Kian, " in *IET Generation, Transmission & Distribution*, vol. 11, no. 11, pp. 2752-2761, 8 3 2017. DOI: 10.1049/iet-gtd.2016.1129
 - In this article, an effective energy management system (EMS) for application in integrated building and microgrid system is introduced and implemented as a multi-objective optimization problem. The proposed architecture covers different key modelling aspects such as distributed heat and electricity generation characteristics, heat transfer and thermal dynamics of sustainable residential buildings and load scheduling potentials of household appliances with associated constraints.
6. **“Semantic Discovery in the Web of Things”**, Fernando Serena, María Poveda-Villalón, Raúl García-Castro, EnWoT-The first International Workshop on Engineering the Web of Things, 05 June 2017, Roma, Italy.
 - The contribution of this paper is two-fold. First, an ontology-based approach to leverage web things discovery that is transparent to the syntax, protocols and formats used in things interfaces is described. Second, a semantic model for describing web things and how to extract and understand the relevant information for discovery is proposed.
7. **“Drivers, Standards and Platforms for the IoT: Towards a digital VICINITY”**, Carna Radojicic, Aida Mynzhasova, Christopher Heinz, Christoph Grimm, Juan Rico, Keith Dickerson, IEEE Technically Sponsored Intelligent Systems Conference (IntelliSys) 2017, 07-08 September 2017, London, UK.
 - The Internet of Things is created by networking many different kind of things, enabling new services and business models. However, things from different manufacturers, various domains, and a number of standards have to interact. Unfortunately, the current situation is characterized by ‘silos’ or ‘islands’ that lack interoperability. This paper gives a survey and analysis of drivers, platforms, and standards for the Internet of Things (IoT) that provide a basis for interoperability. They are considered for requirements of the VICINITY project whose goal is to offer “Interoperability as a Service”.

Other dissemination activities

Apart from the planned dissemination activities, there are some additional ones described below and summarized in Table 4.

8. **“Technical and social aspects of semantic interoperability in the IoT”**, Raul Garcia-Castro 28es Journees francophones d'Ingenierie des Connaissances IC 2017, Jul 2017, Caen, France. Actes IC 2017 28es Journees francophones d'Ingenierie des Connaissances
 - This keynote discussed current approaches and challenges for semantic interoperability in the IoT, covering not only technical aspects but also social ones, presented through different examples drawn from the VICINITY H2020 project and various initiatives in ontology standardization.
9. **“The Internet of Energy - The Building Block for the Future Smart Grids”**, Tutorial presented at the 43rd Annual Conference of the IEEE Industrial Electronics Society (IECON), October 29 to November 1, 2017.
 - Multiple questions and concerns were discussed regarding the privacy and data security requirements especially in smart homes and e-health ecosystems, and how VICINITY will overcome these issues.

	Type of contribution	Contributors	Title	Date
1	Keynote paper	UPM	Technical and social aspects of semantic interoperability in the Internet of Things	July 2017

2	Tutorial in an international conference	AAU	The Internet of Energy - The Building Block for the Future Smart Grids	Oct 2017
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Table 4. Other dissemination activities derived from VICINITY

4.3. VICINITY Web analytics

VICINITY website as a major external dissemination tool has been developed and periodically updated in order to spread the project's concept, objectives, outcomes and latest dissemination activities to the public.

In order to monitor the activity and the audience reached by the project website, the Google Analytics free service is used, supporting the statistical analysis and facilitating the extraction of useful conclusions regarding trends and variations for its use by online visitors. Google Analytics is a very popular web analytics solution that gives rich insights into one's website traffic and marketing effectiveness. It allows for Advanced Segmentation, Custom Reports, Advanced Analysis Tools, Analytics Intelligence, Custom Variables and Data exports. Google Analytics can also track visitors from all referrers, including search engines, display advertising, pay-per-click networks, e-mail marketing and digital collateral such as links within PDF documents.

The following list summarizes the main parameters and indicators that will be used for monitoring of the VICINITY website throughout the course of the project.

- a) Number of visits
- b) Number of unique and return visitors
- c) Average Session and Visit durations
- d) Days of week and rush hours (pages, hits, Kilobytes for each hour and day of the week)
- e) Domains/ countries of visitors
- f) Host list, last visits and unresolved IP addresses list, most viewed, entry and exit pages
- g) Browsers used
- h) Number of times site is added to favorites bookmarks

As such, Google Analytics will help the consortium determine the effectiveness of its web tools and targeted dissemination activities and feed into impact reporting.

The website managed to attract many people on a constant basis, with new sessions being logged every day. In particular, the following graphics show an overview of the user activity. Figure 1 represents a monthly performance report that clearly shows constant user activity between January and November 2017. Figure 2 and Figure 3 give detailed overview statistics on the VICINITY website usage for M13-M23 of the project are provided.

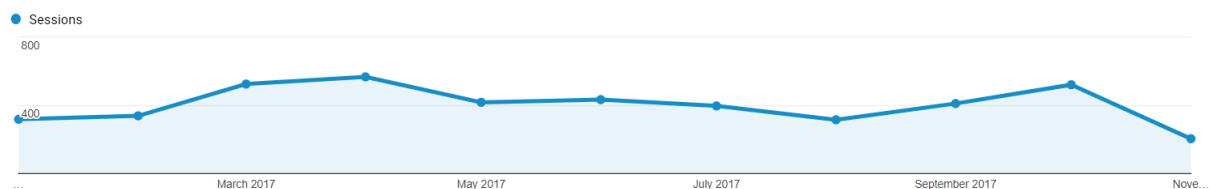


Figure 1. Monthly Performance Report



Figure 2. Audience Overview Statistics

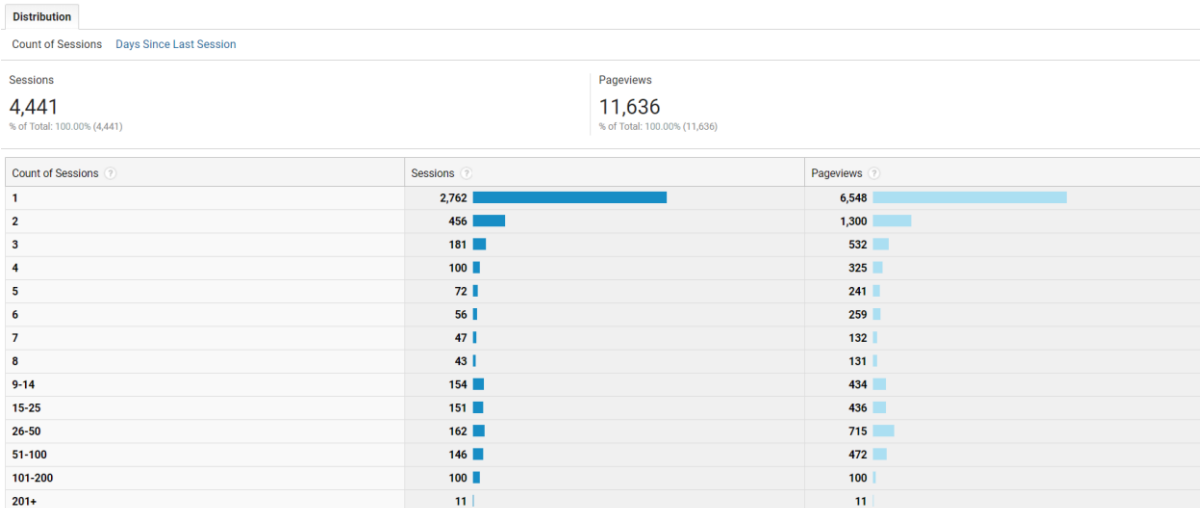


Figure 3. Frequency and Recency Statistics

So far the total number of VICINITY website audience has reached more than 2500 users in more than 4400 sessions with an average duration of 02:52 min, while almost 37.8% of the visitors return. Based on these statistics, we believe that the total number of VICINITY website audiences will be over the original target

(5000 visitors) by the end of the project. These figures and other indicators are displayed in Figure 4 “General overview of the users’ activity” and Figure 5 “New Visitors – Returning Visitors”.

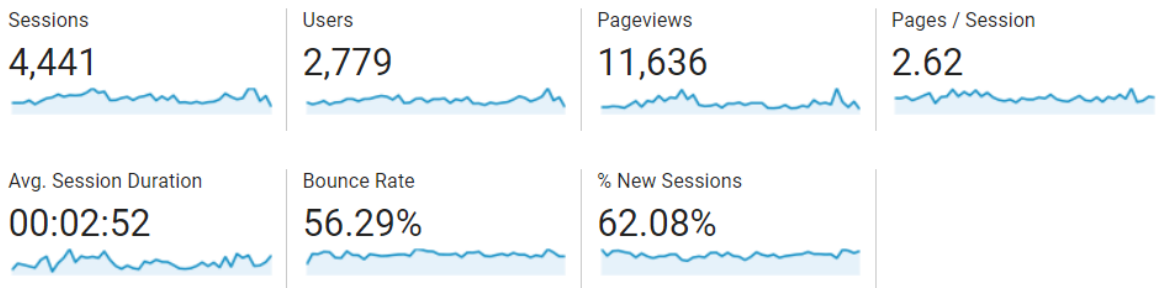


Figure 4. General Overview of the users’ activity

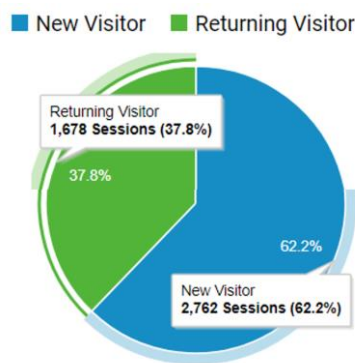


Figure 5. New visitors – Returning Visitors

The following figure reveals that the increased visits in the VICINITY website mostly consist from new users from all over the world. The most visits have been tracked from Greece, because of the main dissemination partner being from Greece, while the second visiting country is the United Kingdom. It is notable that there are many visits from outside Europe, in particular from the United States.

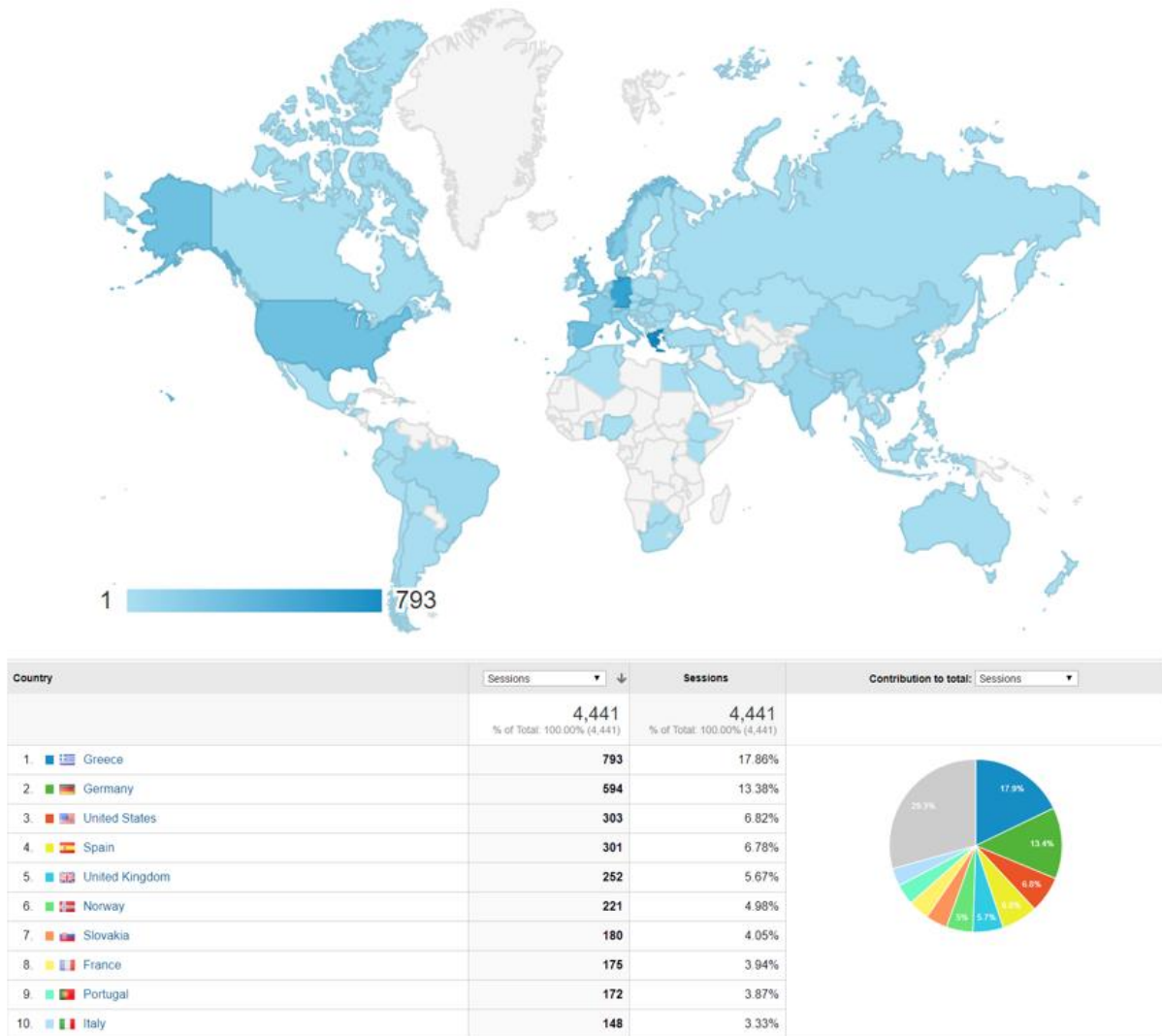


Figure 6. Visitors per country

4.4. VICINITY Social media analytics

4.4.1. Twitter

In order to help the consortium to reach a wider spread with their dissemination activities, VICINITY social media channel - Twitter, applies continuous updates and engages a wide number of visitors.

Free Twitter analytics tools are used to evaluate the impact of the project communication activities. The Twitter analytics tools can track growth, content performance and progress. Besides, improve engagement and grow Twitter audience. In addition, tag tweets and replies for aggregate campaign analysis, meanwhile exporting profile and post-level Twitter reports. Furthermore, easily analyze comments, engagement and Twitter data.

A series of Key Performance Indicators (KPIs) are detailed below as the main considerations and indicators.

- Number of Twitter followers > 292
- Number of Tweets / retweets > 321
- Tweeter impressions and top tweets

4.5. Number of followers

Currently VICINITY has 292 Followers, 156 new followers have been acquired during this period (January 2017-November 2017). The number of followers has evolved monthly during the last year as follows:

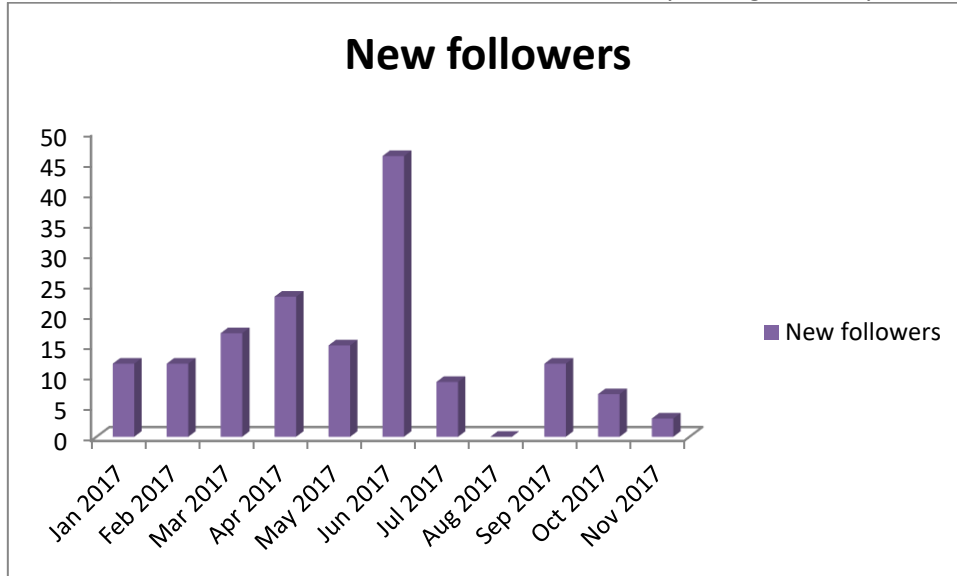


Figure 7. VICINITY New followers

4.6. Number of profile visits

Profile visits: Number of times users visited in VICINITY page. The following chart shows the evolution of profile visits during the period January 2017 – November 2017.

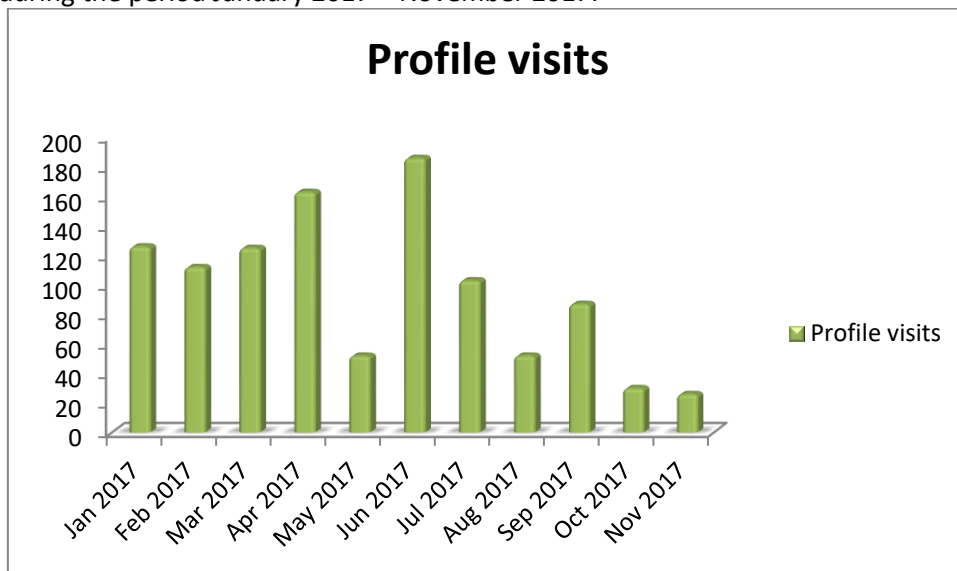


Figure 8. VICINITY Profile visits

4.7. Tweet impressions

Every time a user sees a Tweet, it counts as an impression. The following picture depicts the tweet impressions from January 2017 to November 2017.

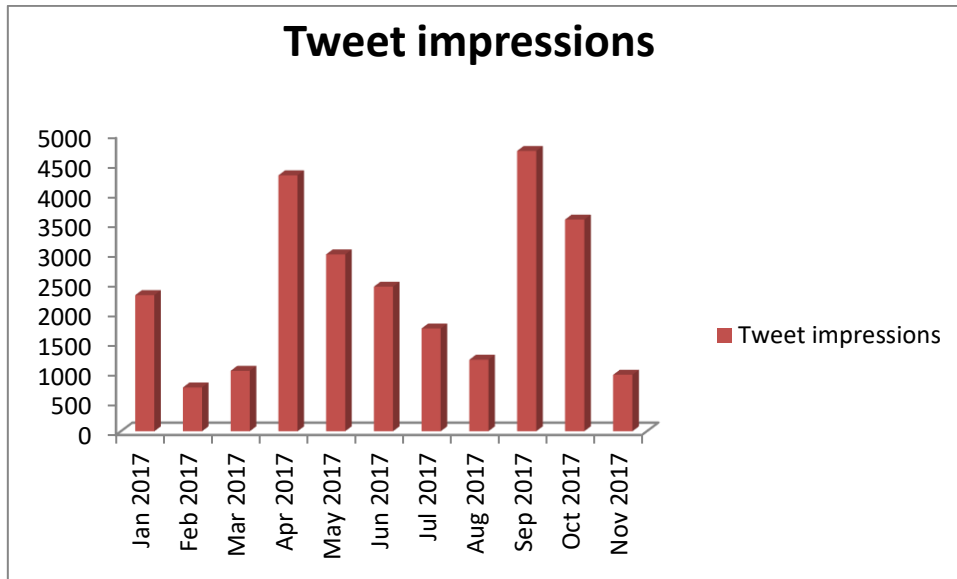


Figure 9. VICINITY Tweet Impressions

4.8. Top Tweets

Top tweet: Tweet that received the highest number of impressions. The twitters with more impressions during this period have been:

- About the presence of VICINITY2020 in the Sido Event
- About the online availability of the Open Interoperability Gateway API

Based on these analytics, it can be seen that the number of Twitter followers by now has already reached the target; meanwhile, the number of Tweets closes to the KPI requirement.

4.8.1. Other social media

A number of social media channels, such as Facebook, YouTube, LinkedIn and Google Plus, have further been early established as well (from month 2 or month 3), to provide the project's objectives, VICINITY concepts, and to raise awareness on project's activities.

The VICINITY 2020 Facebook home page obtained 88 likes. Ten posts have been published during M13 to M23 which earned 35 likes and 1 share.

A project video has been produced and published on YouTube channel and on the website's main page. The project video on YouTube has been viewed 443 times from the beginning of the project and the YouTube channel has 22 subscribers.

Another video describes how the eHealth domain is related to VICINITY and the need for interoperability as a service. This video has been distributed offline and used in 8 presentations so far.

VICINITY 2020 groups have been created on LinkedIn and Google Plus, which now have 61 and 3 follows respectively.

4.9. Newsletter

The VICINITY project releases electronic Newsletter as an internal and external dissemination channel for covering project-related information in somewhat more detail than what can be communicated through social media, addressing the general research society, but also the general public to enhance project outreach.

The Newsletter enables the consortium to update the project community with latest project activities and results. Contents of a Newsletter are based on the important information of the project, including but not limited to project's topics, latest achievements, news, results of the activities, development guides, study reports, milestones and ongoing activities of use-cases. The contents are derived from dissemination activity reports, VICINITY websites, deliverables, and all VICINITY partners' contributions.

The Newsletters are planned to be sent four times a year. This interval may decrease as the project progress, and more results and newsworthy information can be communicated to the participants and stakeholders. During M13 to M24, one Newsletter has been released. Dissemination list of the first Newsletter reaches VICINITY consortium members, IoT-EPI members, VICINITY website audience, social medium followers, etc. Total size of the dissemination list is more than 2000 recipients. The contents of each Newsletter include:

- Editorial
- Overview of VICINITY
- Standardization and Platforms
- From Web Summit to Industry Conferences, a warm welcome to the new concept: Ethics Everywhere
- Pilot Sites/ Use Cases/ Test Labs
- DEMO site visits
- Milestone
- State of the Union
- Latest News and Upcoming Events
- Scientific and Technical Publications

Please refer to *Annex 1 – Newsletter January to September 2017* for an overview of the newsletters published and the corresponding download links.

Alongside the ordinary newsletter, infomails are also being sent on irregular intervals. The target audience is limited to members of the consortium. These infomails primarily contains updates and call to action. So far 11 such infomails have been sent.

4.10. Other dissemination activities

Besides the aforementioned dissemination activities and channels, a special effort has been made on the design of VICINITY illustrations and graphical elements. Furthermore, VICINITY project results have been also disseminated among the research community, policy-makers, private sector, IoT and service-providers, related projects and initiatives, and a wider audience by the following tools.

A project factsheet has been produced at M2 to promote VICINITY key concepts and messages, including clear and appealing info-graphics to be distributed on the web (social media, communities, partners' networks, external blogs, etc.). Printed copies have been distributed in external events.

Brochures have been produced to present a short overview of the project concepts, search domains, use-cases, VICINITY consortium, etc. The brochures have been distributed both on the Web and in external dissemination activities.

In addition, two videos and three posters have been developed and displayed in external events.

- Factsheet
- Information brochures
- Invitation letters
- Videos
- Posters

Please refer to Annex 2 to Annex 4 for more details.

4.11. Dissemination channels and target audience

As mentioned above, a number of dissemination channels and tools have been used and various dissemination activities have been conducted in 2017. The goal has been to inform of the project and get in touch with stakeholders.

VICINITY has identified and addressed the following audience:

- Present and prospective developers and integrators of smart devices.
- Stakeholders within public administration, entrepreneurs and institutions.
- Early adopters, non-technical users, and residents of health homes.

Project results have been disseminated among the research community, policy-makers, and the private sector. Additionally, VICINITY has made a particular effort towards communicating project information to a wider audience.

A detailed description is presented below.

Dissemination tools and channel	Internal/external		Target audience					
	Internal	external	Policy-makers	Industry	R&D Community	Private sector	Related projects & initiatives	General public
Project website		√	√	√	√	√	√	√
Other websites (partner websites, EC services, etc.)		√	√	√	√	√	√	√
Social media and professional networks	√	√	√	√	√	√	√	√

Project events	√		√	√	√		
External events		√	√	√	√	√	√
Target publications and scientific magazines		√		√	√	√	√
Media (radio, tv)		√	√	√	√	√	√
Newsletter	√	√	√	√	√	√	
Exhibitions	√	√	√	√	√	√	√

Table 5. Dissemination channels and target audience

As observed from Table 4, different dissemination channels and tools have different target audience and result in different impacts and feedbacks. Give that, all of the dissemination channels and tools will be kept for the next years.

As it is now, VICINITY consortium has developed a lot of communication material in order to gather the attention of owners of pilot site and defining good use cases in cooperation with residents of these "living labs". With this as basis, we are developing a dissemination and communication strategy especially targeted toward finding technology partners and integrators, as well as finding common grounds with the other IoT EPI projects for further cooperation. These activities includes participation at venues, presentation within clusters/incubators (which of course also are interested in the Open Calls), discussing with other suppliers looking for synergy-effects, and also influence some of the opinion makers that may affect the topics that VICINITY aims to address.

4.12. Feedback analytics

Through the various dissemination activities, VICINITY project raised increased interest and a number of feedbacks in a positive way for the concept and ambition of VICINITY. Totally, more than 1000 audience, which include a wide range of representatives from the IoT communities, industrial companies, research communities, devices suppliers, policy makers, end-consumers, public administration, etc. have been involved in VICINITY dissemination activities.

The main feedbacks, audience reached and total attendees are listed below.

Domains	Main feedbacks	Total attendees	Audience reached
Buildings	<ul style="list-style-type: none"> Complexity and fragmentation of standards leading to a lack of interoperability at all levels. Major concerns about Security, Privacy and Trust. Data Semantics and interworking. Seamless IoT data interoperability in the different pilots and supporting the social network of data interchanges. 	257	<ul style="list-style-type: none"> IoT community including the standardization, industrial, and research communities Several vendors of IoT devices/gateways (such as sensinov)

Domains	Main feedbacks	Total attendees	Audience reached
Mobility	<ul style="list-style-type: none"> Business model: This is not clear yet but will evolve as new applications become available based on open data. Security and privacy Low Power Devices 	65	<ul style="list-style-type: none"> Major motor manufacturers and their suppliers Thought leaders from consultancies Government policy makers Senior academics from Oxford, Cambridge and other universities such as Warwick which are specialising in the areas of transport and cyber security.
Energy	<ul style="list-style-type: none"> A major step forward towards increasing efficiency of current functions in energy systems. Promote the establishment of new developments and create better living conditions for their citizens. Help improve loss of inhabitants' trend in rural areas. Although the use case that received the most interest so far is Smart Energy, it was not the only use case mentioned or promoted. How VICINITY and IOT integrated with microgrids and smart grid? 	140	<ul style="list-style-type: none"> Public Administration SMEs Higher educational institutions and Universities Final consumers Large industry companies including Schneider, GE, HUAWEI, etc. Manufacturers Distributors and service providers within the IoT industry.
eHealth	<ul style="list-style-type: none"> Great interest on how VICINITY, and especially the envisioned value-added services, could efficiently contribute to the major improvement of the e-Health services. The definition of the business barriers and requirements of the VICINITY project in the equivalent Work Package will base on the answer of the D1.2 questionnaires. Security and privacy for accessing and sharing sensitive health data and communicating with medical devices and sensors. Legislation framework that is currently changing and to which VICINITY proposed architecture and pilot demonstrations need to comply. Open Calls - many companies and IoT technology providers show interest in getting funding in order to test the VICINITY platform and implement and demonstrate value-added services in the emerging eHealth ecosystem. 	211	<ul style="list-style-type: none"> Representatives of collaborating Municipalities that offer e-Health citizen services in Northern Greece Representatives coming from one of the major hospitals of Thessaloniki, Greece Doctors and care givers Assisted living and ICT/application providers Municipality and institutional scale authorities and legal representatives.
Standards and Platform	<ul style="list-style-type: none"> The best projects will focus on integrating different initiatives. Security and privacy are major concerns. Battery-free devices are the way forward for mass deployment of sensors. Ontologies are becoming increasingly important for semantic interoperability. The competing technologies at the semantic layer are not clear. Configuration of devices must be seamless and transparent or the IoT in the Smart Home will always have a limited market. A number of ontologies have been received that might be useful for VICINITY ontology. Why the specific platforms selected were chosen? 	146	<ul style="list-style-type: none"> Representatives from the EC Service providers Equipment vendors Administrations Policy makers and regulators Research institutions and universities

Domains	Main feedbacks	Total attendees	Audience reached
	<ul style="list-style-type: none"> How to extend the number of standards covered and what business models we envisioned for that? 		
IoT and interoperability	<ul style="list-style-type: none"> Raise increased interest in “VICINITY virtual Neighbourhood” concept for allowing IoT interoperability in cross-domains. Value-added services Open Calls Promote interoperability across ICT-30 projects. IoT EPI as CSA is interested in working on increasing awareness for promoting participation of relevant actors in them. 	320	<ul style="list-style-type: none"> IoT technology solution providers in Greece Telecommunications and energy providers End-users Research representatives Online audience Representatives of IoT community Public administrations Large companies, including SMEs and final consumers. Atos Sales team and part of the development teams Start-ups in the IoT community, including William Webb Founder of CW Chair of the Weightless SIG Project Manager for Smart Cambridge Chair of the LoRa Alliance.

Table 6. Main feedbacks, audience reached and total attendees.

All in all, the VICINITY project has been very welcome. VICINITY raised increased interest in a positive way for the proposed “VICINITY virtual Neighbourhood” concept for allowing IoT interoperability in cross-domains. The envisioned value-added services were a point of discussion, showing interest from the application-development scope, revealing the new horizons possible in combing real-time data from diverse sources and allowing clustering of related information to provide value-added applications under new business models. The Open Calls was another important point of discussion, both during the open discussion and the networking session that followed. Many companies and IoT technology providers showed interest in participating in the process, to have the opportunity to get funding through the open call procedures in order to test the VICINITY platform and implement and demonstrate value-added services in new cross-domain fields. Semantic interoperability, security and privacy, low power devices, business model and standards are the hot topics as well.

The questions and comments have been addressed during open discussion and the simultaneous brainstorming during each dissemination activity. Cooperation opportunities on areas of common interest have been appeared. These would have to be organised based on equal contribution of effort and funding for equal benefits. Contact will be maintained for further discussion and the identification of collaboration opportunities.

Therefore, they were great opportunities to receive early feedbacks on the VICINITY concept, objectives, VICINITY task planned, research methods, etc., and to look for collaboration opportunities.

Because on the dissemination activities where VICINITY presented research issues form a project that was just starting, it was not surprising that most of the interest was from the academics. In fact, VICINITY project have been presented in front of major industry companies and devices suppliers as well in year 2, and have received a number of feedbacks from them. In the next years, more and more industrial-related dissemination activities will be planed and conducted, such as exhibitions, congresses, demonstrations, etc.

5. Dissemination activity plan for 2018

5.1. Public participation

In 2018, VICINITY partners plan to extend their public participations to further promote the visibility and accessibility of VICINITY project and the latest results proposed in WP3.VICINITY Server Implementation, WP4. VICINITY Client Infrastructures Implementation, WP5. Value-Added Services Implementation, and WP6. VICINITY Framework Integration & Lab Testing.

Based on the experiences obtained from the external event participations in 2017, a tentative list of public participations in 2018 is presented below:

Topic	Events, Conferences and Workshops
ICT and IoT	<ul style="list-style-type: none"> • Internet of Things Conference • IEEE International Conference on Emerging Technologies • IEEE World Forum on Internet of Things • International Workshop on Engineering the Web of Things • IEEE Technically Sponsored Intelligent Systems Conference (IntelliSys) • Arendalsuken • Nordic Edge Stavanger 2018 • Smart City Expo 2018 • Smart IoT London 2018 • IoT Tech Expo Global 2018 • IoT Tech Expo Europe 2018 • ITAPA 2018
Energy	<ul style="list-style-type: none"> • IEEE Energy Conversion Congress & Exposition (ECCE) • Annual Conference of the IEEE Industrial Electronics Society (IECON) • ICCE International Conference on Consumer Electronics (ICCE) • IEEE PES PowerTech Conference • Start-Up Week Europe • Start-up Portugal • European Utility week 2018 Birmingham • Nordic EV Summit
Transport	<ul style="list-style-type: none"> • Intelligente transportsystemer - ITS-Forum 2018 • ITS Konferansen 2018 • Various network meetings and events
eHealth	<ul style="list-style-type: none"> • Health Tech Event • HealthyIoT • International Conference on Wearable Micro and Nano Technologies for Personalized Health (pHealth) • DIGITAL HEALTH WORLD CONGRESS 2017

Table 7. A tentative list of public participations in 2018

5.2. Publications plan

The VICINITY consortium will continue showcasing project outputs in international peer-reviewed journals or specialised magazines. They will be prepared each time the project has key findings to disseminate. Those publications will be derived from the results of the research activities, development guides, laboratory testing results, study reports, use-cases operations, status, etc.

A tentative list of publication journals and magazines in 2018 is presented below:

Topic	Peer-reviewed Journals and Magazines
ICT and IoT	<ul style="list-style-type: none"> • IEEE Internet of Things Journal • Springer Advances in Intelligent Systems and Computing
Energy	<ul style="list-style-type: none"> • Organize special sessions and Call For Papers (CFP) in relevant 2018 IoT-Energy conferences and forums • IEEE Transactions on Smart Grid, Power Electronics, Industrial applications • IET Generation, Transmission & Distribution • IEEE Consumer Electronics Magazine and Journal
eHealth	<ul style="list-style-type: none"> • International Journal of E-Health and Medical Communications • Telemedicine and e-Health Journal

Table 8. A tentative list of publication journals and magazines in 2018

5.3. Other dissemination activities

A variety of dissemination tools and channels will continuously be adopted and updated, such as project website, social media, Newsletters, factsheet, information brochures, invitation letters, videos, posters, etc. 4 new videos will be produced during 2018, one detailing the project, with 3 others describing each domain in depth.

Additionally, the VICINITY consortium will organize national talks and keynotes to attract IoT and ICT companies, solution providers within smart buildings, transport, e-health and energy management industries. Several events will be held where open calls are promoted. Flyers, brochures and cards alongside roll-ups and posters will be produced.

Furthermore, laboratory demonstrations (AAU IoT Microgrid Lab, ATOS Internet of Everything Lab (IoE Lab), UNIKL Test Lab, and CERTH Test Lab) will be held to present the integration of IoT devices, VICINITY Framework, and lab. testing for visitors and stakeholders in line with WP6. System Integration & Lab Testing.

6. Conclusion

The hereby Report on Dissemination Activities, Public Participation and Awareness aims to summarise dissemination activities' and public participations' categories, feedbacks, details; publication numbers, contributors, types, topics; statistics analytics of various dissemination channels and tools developed or participated by VICINITY consortium, thereby analysing and evaluating the visibility, impression, accessibility of each dissemination activity.

It will give rich insights into the achievements of previous dissemination activities, furthermore, help the consortium determine the effective and targeted dissemination channels, tools, and dissemination activities, and improve on the activities based on lessons learned from the first year.

A matrix has been created to address the needs of each participant at the current status. This matrix will contribute to have the activities becoming anchored in the organisation, and making the goals clearly defined.

The matrix will also clarify how to handle invitations to pilot sites, organising material that is relevant for long and short meetings – as well as following up afterward.

Channels	Target group	Material available	Material needed
Posters, brochures, and fliers	Everyone needs to provide information	Yes	More materials are needed for next year
Social media	Everyone needs to provide information	Yes	More materials are needed for next year
Press releases and press conferences	Everyone	Yes	More materials are needed for next year
Columns and reports	Everyone	Yes	More materials are needed for next year
News stories in both print and broadcast media	Everyone	Yes	More materials are needed for next year
Outreach and presentations to other Horizon programs, IoT providers, community groups, municipalities and institutions.	Everyone	Yes	More participations are needed for next year
Special events, demonstrations and open houses that participants and stakeholders are holding	ENERC, HITS, TINYM, BVR	Not all	Demo sites ready
Newsletters	Everyone needs to provide information	Yes	More information is needed for next numbers

Table 9. Each participant need to develop their own communication matrix to help planning

A comparison between the main dissemination activity achievements of M13-M24 and dissemination plan is shown in the following table. It can be seen that most of the pre-set KPIs are very well reached and even over-fulfilled in several dissemination channels, e.g. participation in external events and project social media. A special event also has been taken place at the Norwegian pilot sites. VICINITY consortium has been invited by IoT-EPI to participate in more of their upcoming exhibition stands. The project plans on building upon the good relations established in Lyon and Hamburg, and intend to participate in at least one such event in 2018. VICINITY partners have been done a great dissemination job in the first year with participating and informing about VICINITY at various internal/external events, and with promoting project visibility by a number of dissemination channels and tool conferences. Through the various dissemination activities, VICINITY project raised increased interest and received many positive feedbacks from a wide range of stakeholders, such as IoT communities, industrial companies, research communities, devices suppliers, policy makers, end-consumers, public administration and so on.

Based on the lessons VICINITY has learnt after this second year in terms of dissemination activities and materials, several targets have been updated as shown below. Additionally, demonstrations, VICINITY exhibition stands, roll-ups, giveaways will probably be ready for next year. Some of the dissemination channels, e.g. LinkedIn, Google plus will be more active in next years.

	KPIs		Updated targets
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Dissemination channels and tools	Items (month 48)	Targets	Achievements of M13-M23	M12-M24	M25-M36	M37-M48
Participation in external events	Contributions external events	12	26, which includes: - Event: 5 - Workshop: 12 - Conference: 8 - Congress: 0 - Forum: 1	9	9	9
Project events	VICINITY workshops Number of workshops:	3	3, which includes: - Workshop: 2 - Webinar: 1	3	3	3
	Number of participants per workshop:	30	34	35	35	35
Publication	Number of journal, conference publications:	> 20	6	6	6	6
Project website	Number of visitors December 2016 (Month 12):	2000	> 2000 (M1-M11)	2000	2000	2000
	Average duration of visits:	1 min	2:51 min	3 min	3 min	3 min
Project social media	Number of Twitter followers	> 100	109 (M1-M11)	> 110	> 110	> 110
	Number of Tweets / retweets	> 150	108	> 110	> 110	> 110
	Size of the LinkedIn Group	> 150	6	> 50	> 50	> 50
Project biannual e-Newsletter	Number of e-Newsletters published	10	1	4	4	4
	Size of the dissemination list	> 1 000	> 2000	> 2000	> 2000	> 2000
Information brochures	Number of brochures	2	2	2	2	2
Videos	Number of videos to be produced	2	2	2	1	1
Project factsheet	Number of factsheet	1	1	1	1	1
Invitation letters	Number of Invitation letters	2	2	2	2	2

Posters	Number of posters	2-3	3	> 8, at least 1 for each main domain/use case
Press releases	Number of press releases	4	1	4
Business cards	Number of Business cards	2	2	> 2, 2 alternative versions: 1x VICINITY specific with all graphical elements 1x VICINITY related, using just logo

Table 10. A comparison between the main dissemination activity achievements of M1-M12 and dissemination plan.

7. Annex 1: Newsletters

7.1. 2nd VICINITY Newsletter

VICINITY is now in its most important phase, for several reasons. First, we are in the process of finishing the requirements and specification phase. Second, we are starting development of the software and getting more in-depth into modeling of the use cases. Third, we are facing our first real review in September.

The second newsletter gives a gentle introduction in the results and upcoming tasks so far. This includes the specification and platform decisions that take a large part of this newsletter. But it also covers the first publications that show the impact of VICINITY also on science and technology. A large part is also devoted to the test labs in which we, in future, plan to demonstrate and evaluate VICINITY.

[VICINITY Second Newsletter \(January – March 2017\)](#)

7.2. 3rd VICINITY Newsletter

VICINITY is now at the end of its first reporting period. We have so far completed the VICINITY specification and have started on the implementation. What follows is a hot summer to review so far and to demonstrate the results. Time will show what is hotter: the summer or the workload and we all have a lot of work to do at the wrong time. Here is a summary:

- Deadline for the management and periodic reports is July.
- Also, each partner has to **report** the usage of **financial resources** to be included in the periodic report. This will be done by each partner via the EC participant portal.
- **The EC Review is on 1st September, in Brussels (Av. Beaulieu) from 8:30 to 17:00** with a rehearsal the day before. All partners will be represented and we will have a working demo of our implementation.
- The “**Demo- and EPI-Meeting**” will take place in **Athens on 28/29 September**.

[VICINITY Third Newsletter \(April – June 2017\)](#)

7.3. VICINITY Newsletter – Special Edition

We are all very excited about being able to present these news; Friday, 1st of September represented a milestone for VICINITY2020. We did for the first time to demonstrate in public that we have a working version of Interoperability as a Service. ***Giant leaps always start with small steps.***

One of the key elements of VICINITY is the ability to cross boundaries between devices, allowing them to share data regardless of physical location, brand or functionality. This is exactly what happened on this grey and rainy Friday.

We proved that devices from different sources and disciplines were able to interact via VICINITY. But there is an “one more thing”: we also demonstrated the capability of VICINITY to ensure privacy. No data has to be sent to the cloud. Users keep control of their data and its use – this will become more important in the future with the upcoming General Data Protection Regulation (GDPR) legislation. VICINITY will continue to be improved and expanded upon, but this is well worth celebrating

[VICINITY Newsletter Special Edition](#)

7.4. 4th VICINITY Newsletter

We are proud to present the now already 4th newsletter on the VICINITY project. Why so many newsletters? Because actually, there is a lot of news. We had a successful review meeting in Brussels. We had the Demos of the VICINITY implementation in Brussels and in Athens. And, due to that, we have a first running prototype. With many limitations and not implementing every feature, but it is there.

We now face a number of further challenges. The testing is starting in various labs. We have prepared the open calls that are intended to boost the impact of VICINITY and these are about to go out. Last but not least, the review of the first reporting period was successful. The results of VICINITY were considered to be technically excellent with some improvements to be made to the business models. Our unique approach to providing interoperability while safeguarding the privacy of users combines elements from peer-to-peer networks with elements from edge computing. As a result, we really earned (and received) the new payments from the EC that are just being transferred to our partners.

8. Annex 2: Factsheets

European Commission

VICINITY 2020

"Interoperability as a Service for the Internet-of-Things – a bottom-up approach."

The VICINITY project will build and demonstrate a platform and ecosystem that provides "interoperability as a service" for infrastructures in the Internet-of-Things (IoT). The approach is bottom-up, decentralized and user-centric and involved in standardization without relying on a single standard.

Project title:
Open virtual neighbourhood network to connect IoT infrastructures and smart objects

Coordinator: TU Kaiserslautern (DE)

Partners:
TU Kaiserslautern - Germany, ATOS Spain SA, CERTH - Greece, Aalborg University - Denmark, Gorenje - Slovenia, b4venti - Slovakia, Climate Associates - UK, InterSoft - Slovakia, Universidad Politécnica de Madrid - Spain, Oncom Informatics - Greece, Tiny Mesh - Norway, Hafstrom - Norway, Enercotium - Portugal, Municipality of Pylosa Choriatis - Greece

Duration: 01/2016 - 12/2019

Total cost: 7.5m €

EC Contribution: 7.5m €

Programme: H2020-ICT-30-2015

Website: www.vicinity-h2020.eu

Figure 1: Vicinity architecture for smart home.

The diagram shows a 'SMART HOME' at the top, connected to 'SMART ENERGY' at the bottom. The smart home is linked to 'HEALTH', 'TRANSPORT', and 'DATA CONCENTRATOR'. The smart energy is linked to 'DATA CONCENTRATOR', 'GATEWAY DEVICES', and 'SMART ENERGY'. The diagram also shows 'OPEN INTEROPERABILITY GATEWAY' and 'OPEN INTEROPERABILITY GATEWAY' connecting the smart home and smart energy to the 'VICINITY 2020' platform.

VICINITY's Solution

The solution of VICINITY is to connect IoT devices in smart entities, i.e. a smart home contributing to a smart grid via a local gateway and the VICINITY open interoperability gateway.

The local gateway (Fig. 1, top middle) technically communicates with the local IoT devices. It is able to run apps that control local services, supported by the VICINITY open interoperability gateway.

The open interoperability gateway (Fig. 1, middle) provides the local premises with data for service discovery and semantic information. However, its main function is to host and provide value-added services that build on top of recognized services in local premises and its (digital) vicinity.

The value added services are a novel kind of functionality, based on availability of the rich data and functionality that stems from the IoT devices of different users, different smart entities that enables new business models. An example is the aggregation of different smart appliances to a virtual smart grid. Via VICINITY, then a kind of micro-energy trading driven bottom-up by users is enabled. Other value-added services are the use of the same infrastructure for other domains or use-cases, e.g. use of smart appliances and its data for eHealth applications.

A prime concern is *privacy*: the VICINITY approach gives each user the ultimate control of its data. Each user has the decision whether to contribute IoT devices and/or its data to which value-added services or not via the web-based neighbourhood manager (Fig. 1, left). Privacy in VICINITY is hence "built-in" as local data aggregators are under control of the users.

Demo 1: Smart grid and Parking NO

The interconnection of smart objects under a virtual neighbourhood of intelligent buildings, addressing both geographical proximity as well as energy profile relevance aspects that will allow them to negotiate as groups their potential localized energy flexibility within a Smart Grid ecosystem, allowing the realization of dynamic Demand Side Management (DSM) strategies.

Intelligent Transport and Smart Parking. In the demonstrated solution, prioritized parking space, booking, heating management, traffic analysis, communication and messaging services based on big data, data will be adjusted according to stored rules. The sensors will report proximity and temperature, which will be accessible for the health house and made available to the virtual neighbourhood.

Demo 2: Smart Energy Neighbourhood PT

Demonstration Pilot Site will be located in the municipality of Martin Longo in the Algarve region, Portugal, with over 1300 inhabitants. The Demo site consists of three historic Solar energy production sites, Cluster of the municipal buildings, Solar Lab NZEB building, housing various equipments, including Meter station and advanced DSM measurement.

The use case will target the management of a community-scale smart energy system IoT enabled within the municipal setting. Generation and Demand sides, could be obtained and matched by gathering data from sensors and building information models that will allow for resources optimization, delivery of value-add services to the community through interlinking the data from various sources.

Demo 3: eHealth at home GR

CERTH SMART HOUSE

The goal of this Test bed infrastructure is to perform extensive trials on the integration and interoperability of VICINITY platform to buildings and objects were IoT Devices and their associated networks have been already installed. To that end, the use of two buildings at CERTH premises (IT Building and RPTIS Smart House Building) will be utilized towards ensuring the robust and efficient operation of the VICINITY framework.

HEALTH CARE at home.

This use case will be demonstrated in the municipality of Pina Horta, in Northern Greece, with the participation of a number of all above targeted people, identified through municipality health care services. The requirement is to ensure of real-time integration with existing systems and extension with more services as brought by the VICINITY platform will be assessed to compare to the current "best-of" scenario and indicate the advancements brought by VICINITY.

Demonstration and Impact

The VICINITY project's solution will provide an IoT platform that is able to connect so far isolated islands, and that allows integration of end-users and creation of new business models. VICINITY strives for large-scale demonstration of the applicability of the solution in different use cases that implement and demonstrate different value-added services on top of the VICINITY platform.

The first use case is a smart energy micro-grid that is enabled by municipal buildings (Enercotium, Portugal). The VICINITY value-added services will provide users with information on potential energy savings and thereby increase awareness of the contributors.

The second use case shows how to combine infrastructure from different domains: a Smart Grid ecosystem is combined with an Assisted Living use case (Tiny Mesh, Norway).

The third use case is eHealth (GNOMON, Greece). In this use case we study particular applicability in the domain of eHealth with its specific needs and constraints. Value-added services are the detection of abnormal events, and the possible finding and clustering of similar patients based on data mining.

The last use case shows how a large number of different data sources from different domains can be combined for an intelligent parking space (Hafstrom, Norway), considering data from booking, heating management, health status, and considering user incentives.

VICINITY is open and welcomes participation of further interested consumers, integrators and developers of value-added services.

VICINITY 2020

Figure 10. Factsheet prepared by Enercotium

VICINITY

Open virtual neighbourhood network to connect IoT infrastructures and smart objects

SUMMARY

The VICINITY project will build and demonstrate a platform and ecosystem for IoT infrastructures that will offer "Interoperability as a Service". The platform aims to be device and standard agnostic, and will rely on a decentralised and user-centric approach. VICINITY aims to retain full control of the ownership and distribution of data across the different IoT domains.

VICINITY introduced the concept of virtual neighbourhood, where users can share the access to their smart objects without losing the control over them. A virtual neighbourhood will be a part of an IoT infrastructure that offers decentralised interoperability and will release the vendor locks that are present in the current IoT ecosystems.

New independent value added services across IoT domains may benefit from the availability of the vast amount of data in semantic formats that are generated by IoT assets.

CHALLENGE

The lack of integration across different disciplines, vendors and standards prevents exploitation of the huge potential in successful large-scale IoT implementations.

It is difficult to control the data flow and privacy settings within a virtual neighbourhood consisting of IoT devices, and it creates both social and technological barriers which affects the development of new value-added services.

Identifying, configuring, managing and updating information concerning the IoT ecosystem demands technical expertise, which makes it less feasible for the smaller stakeholders, and ultimately may lead to slow adoption rate among the users that may be in the most need - especially within the eHealth and assisted living domain. This is however also something that influence smart home appliances and green energy implementations, as well as how smart home systems are tied in with transportation and the nearby surroundings.

SOLUTION

VICINITY presents a virtual neighborhood concept. A decentralized approach resembling a social network will be used. The users are allowed to configure installations and integrate standards according to the preferred services, as well as being able to fully control their desired level of privacy.

Data exchange between different devices is handled through the VICINITY open interoperability gateway, which reduce the need for having a technical background in order to exploit to the VICINITY ecosystem.

An API will allow for easy development of an adapter to the platform. Once an IoT infrastructure is integrated, its owner can simply manage the access to his/her IoT data and controls using the VICINITY neighbourhood manager (VNM).

Connecting to detected IoT infrastructures is handled by the open VICINITY auto discovery device. The device will automatically discover the smart objects. These devices will appear in an device catalogue, and will allow the users to manage access rules for the discovered smart objects.

VICINITY

Open virtual neighbourhood network to connect IoT infrastructures and smart objects

USE CASES

Use case #1: SMART ENERGY MICROGRIDS COMMUNITY
Intelligent management of power and heat requirements in municipal buildings based on information models and sensor data

Use case #2: SMART ENERGY MICROGRIDS NEIGHBOURHOOD
Creating an energy flexibility forecast within a smart grid ecosystem based upon information from smart devices

Use case #3: INTELLIGENT TRANSPORT AND SMART PARKING
Defining prioritized parking space for residents with certain disabilities based on properties, proximity to access points, traffic analysis and urgency.

Use case #4: eHEALTH AT HOME
Realtime sensor information from electronic medical care services such as wearables and communication devices will be provided for improved quality of life.

Use case #5: SMART HOUSE TEST-BED
Using a vast variety of sensors, actuators, and smart devices to demonstrate the VICINITY framework.

HOW TO GET INVOLVED

VICINITY seek to identify and engage stakeholders across different domains, such as healthcare assisted living, smart parking/mobility, smart home/building and smart energy. Insight will be gained through interviews and pilot installations, and stakeholders are encouraged to participate.

A stakeholder may be end users as well as IoT integrators and developers. It can also refer to municipalities, management and opinion makers, as well as other parties influenced by the VICINITY platform.

Focus is placed on creating a robust platform for creating interoperability within the IoT domain, making it possible to create user friendly, secure and transparent solutions to integrate, operate and manage smart devices.

The goal is to explore barriers as well as business drivers and new value added services within the IoT ecosystem.

AT A GLANCE

Project Coordinator	Prof. Dr. Christoph Gimm, FB Informatik, Technische Universität Kaiserslautern (DE)
Partners	Technical University of Kaiserslautern (Germany), ATOS Spain SA (Spain), Centre for Research and Technology Hellas (Greece), Aalborg University (Denmark), Centre Cooperdizinski Aparat D.O. (Slovenia), Hellenic Telecommunications Organization S.A. (Oreece), Bayer, S.R.O. (Slovakia), Climate Associates Limited (United Kingdom), Inermet A.S. (Slovakia), Universidad Politecnica de Madrid (Spain), Gnomon Informatica S.A. (Greece), Tiny Mesh AS (Norway), Håfenstrom AS (Norway), Enercoutm (Portugal), Municipality of Pileá-Hotails (Greece)
Duration	January 2016 - December 2019
Funding	7.5m €
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Figure 11: Factsheet EPI format

9. Annex 3: Examples of illustrations and graphical elements

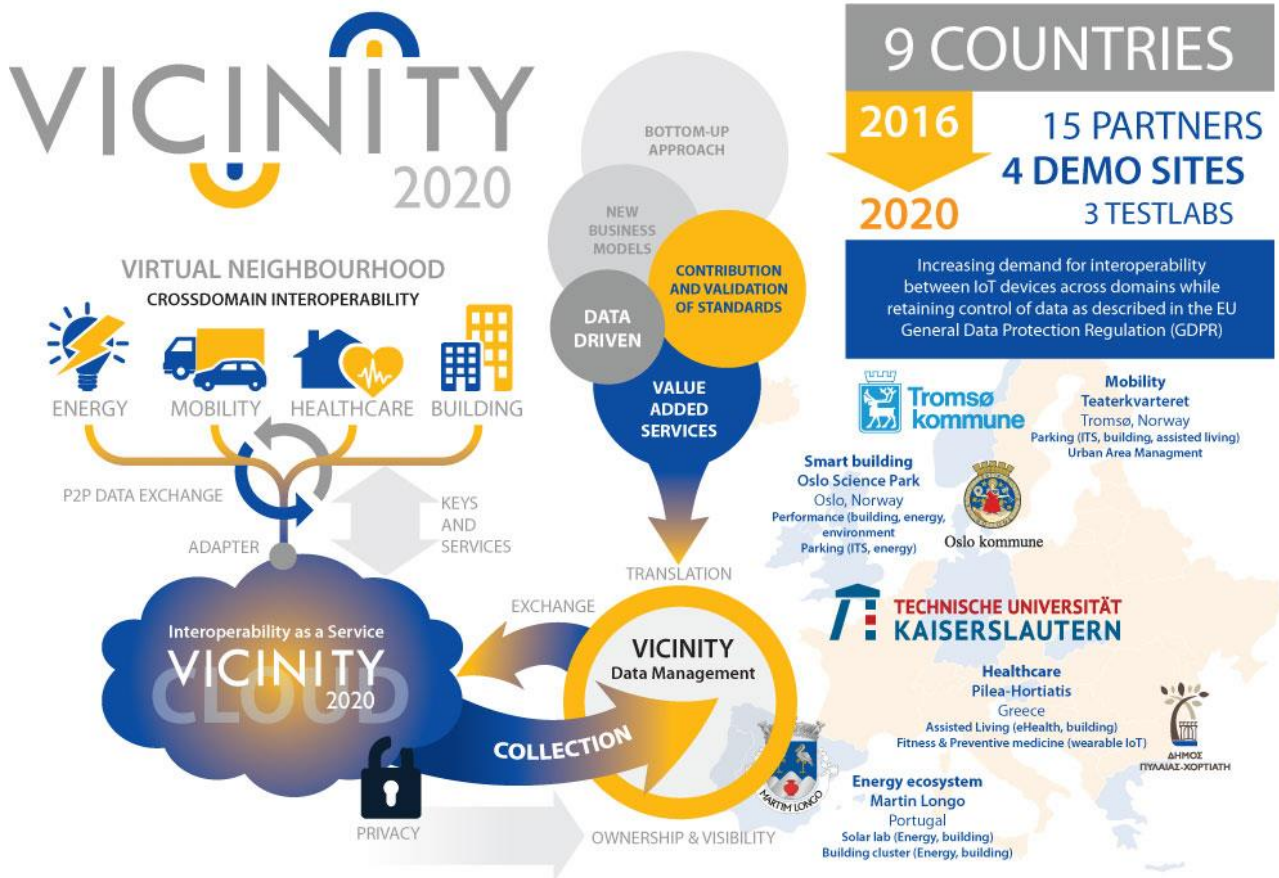


Figure 12: Illustration describing VICINITY main concept

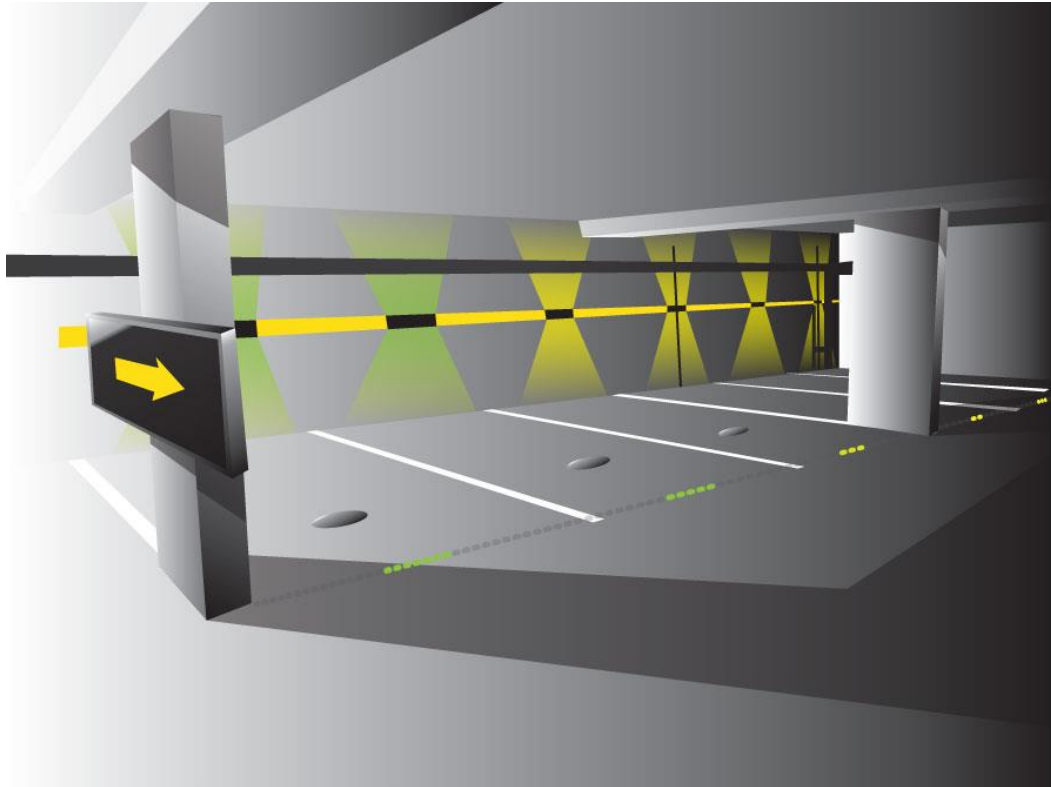


Figure 13: Illustration outlining possible configuration in garage facility

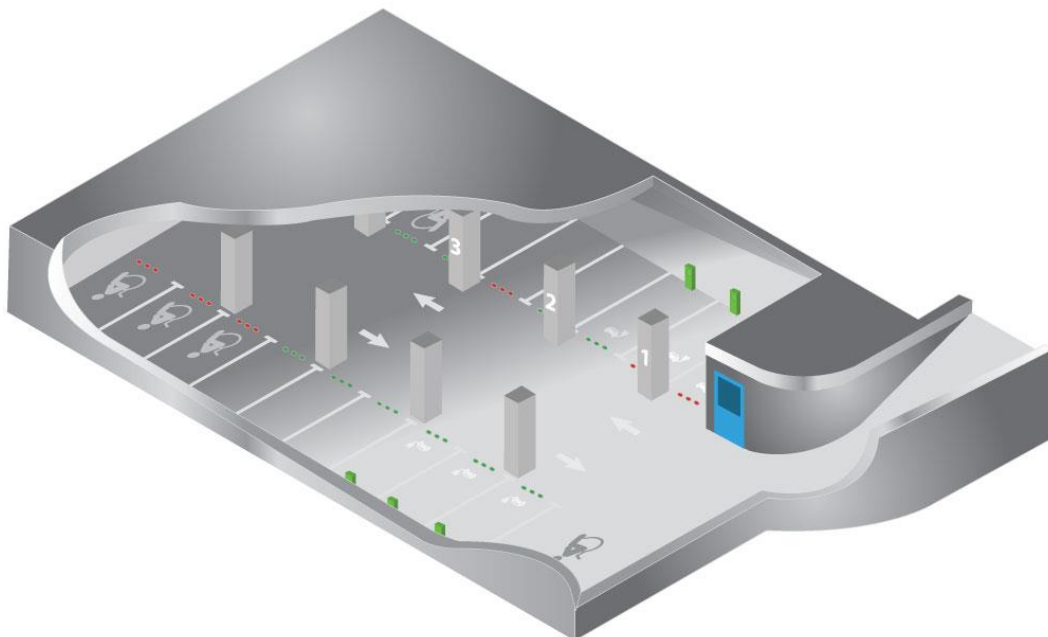


Figure 14: Illustration describing a conceptual setup of the mobility use case



Figure 15: Mobility



Figure 16: Smart building



Figure 17: Smart energy



Figure 18: eHealth



Figure 19: Group



Figure 20: Ownership



Figure 21: Smartlight



Figure 22: Mobile



Figure 23: Parkingsensor



Figure 24: Privacy



Figure 25: Acceptance



Figure 26: ALPR



Figure 27: integration



Figure 28: Business Intelligence



Figure 29: Value-added service



Figure 30: Ecosystem



Figure 31: Smart building



Figure 32: Assisted living



Figure 33: Feedback



Figure 34: Stakeholders



Figure 35: Interview



Figure 36: Participant



Figure 37: Interoperability



Figure 38: Microtransaction



Figure 39: Observation



Figure 40: Research



Figure 41: Questionary



Figure 42: Report



Figure 43: Validation



Figure 44: Reference



Figure 45: Mobile app - booking and admin



Figure 46: Energy meters



Figure 47: Building management



Figure 48: Parking sensors



Figure 49: Authorisation and authentication



Figure 50: Agencies - bluelight and caretakers



Figure 51: Drivers and tenants



Figure 52: Building and external sensors



Figure 53: Vehicles



Figure 54: Parking space owners



Figure 55: Car and truck



Figure 56: Infrastructure



Figure 57: Configuration



Figure 58: eHealth



Figure 59: Energy



Figure 60: Smart light



Figure 61: Communication



Figure 62: Funding



Figure 63: Mobile config



Figure 64: Mobile app



Figure 65: Network



Figure 66: Discovery



Figure 67: Dissemination



Figure 68: User



Figure 69: Stakeholders



Figure 70: Smart home



Figure 71: Smart building



Figure 72: Smart city



Figure 73: Header used for infomail sent during summer



Figure 74: VICINITY season greetings