



WP5 Dissemination, exploitation and sustainability

D5.3 Second year update dissemination and exploitation plan

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BIGCLOUT

*Big data meeting Cloud and IoT
for empowering the citizen ClouT in smart cities*

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ABSTRACT

The deliverable D5.3 is the second update of the BigClouT dissemination and exploitation plan. It aims to present dissemination and exploitation achievements toward the objectives and the measurable indicators.

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EXECUTIVE SUMMARY

This deliverable is the second update of the BigClouT dissemination and exploitation plan.

The deliverable firstly presents the global strategy for both dissemination activities and exploitation activities during and after the BigClouT project. Stakeholders' definition and management are detailed for using their contributions as soon as possible in the BigClouT project lifetime. It also reminds the project's concrete goals with measurable indicators and their current value in order to have an overview of the progress.

The dissemination plan part describes the achievements toward the objectives and the measurable indicators, the progress on the dissemination materials - i.e. website, flyer - and the reporting for the activities performed so far (M1-M24).

The exploitation plan part describes the current status on identification of individual and joint exploitation opportunities. It presents, not only exploitable items from partners but also the aim and strategy on community building for sustainability of the project results. It also presents preliminary ideas and highlights on project's business model analysis.

The next dissemination and exploitation report is scheduled at M36 and will provide updates on progress from related activities.

1 GENERAL STRATEGY

BigClouT gives a particular importance to the dissemination and exploitation activities to facilitate the communication between BigClouT partners and stakeholders. The relevant stakeholders will be informed continuously about BigClouT progress and results to give BigClouT necessary feedback and visibility at the international level.

Dissemination and exploitation activities are included in the Workpackage 5 “Dissemination, Exploitation, Business Modelling” which aims to ensure scientific, social and economic impacts based on the results of the BigClouT project in Europe and in Japan. The main related tasks are:

- Business model analysis and development in Europe and Japan
- Exploitation and IPR management for BigClouT-EU and for BigClouT-JP consortia
- Dissemination and public awareness in Europe and Japan
- Collaboration activities with IERC, Internet of Services (IoS) and Future Internet (FI) projects
- Community building and sustainability for project outcomes

The figure below describes the general strategy for both dissemination activities and exploitation activities during and after the BigClouT project:

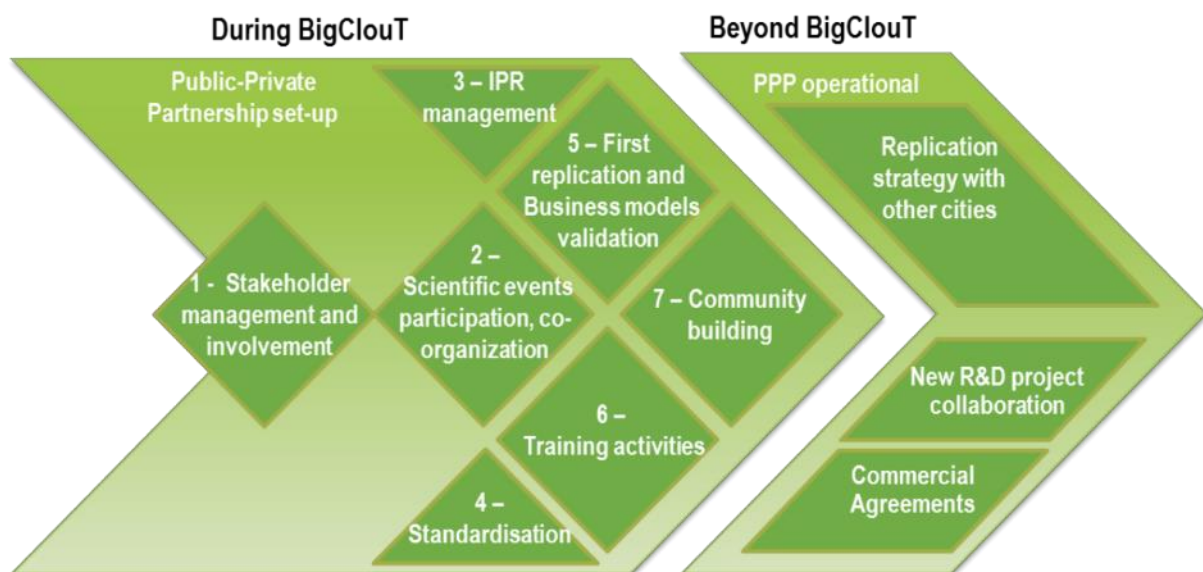


FIGURE 1-1: OVERALL DISSEMINATION AND EXPLOITATION STRATEGY

During BigClouT:

- Community building
- Setting-up a sustainable collaboration environment, a global alliance among and beyond the BigClouT partners.
- Stakeholder management for deployment and exploitation opportunities
- First replication and business model validation, including ESIF funding strategies
- IPR and foreground management
- Participation in major international scientific events and international workshops co-organizations
- Standardisation activities
- Training activities

Beyond BigClouT: the replication strategy of the services/results in other cities will be driven on the behalf of the collaboration alliance that will be created. The current status of the alliance is presented in detail in Section 3.2.1. Ultimately, this strategy will lead to long-term collaboration agreements between European and Japanese partners. It will provide a common sustainable environment for future research and industrial projects.

Specific measures are detailed below for each of the planned activities.

1.1 Stakeholder's management

1.1.1 Stakeholders' definition

The BigClouT project deals with multiple stakeholders which could be people or organisations involved in, contributing to, or affected by BigClouT project activities.

The stakeholders include BigClouT end-users or any organisation / people directly or indirectly in line with the project activities, results or partners.

The figure below drafts the current and potential stakeholders that have been specified and considered as most relevant for dissemination and exploitation activities.

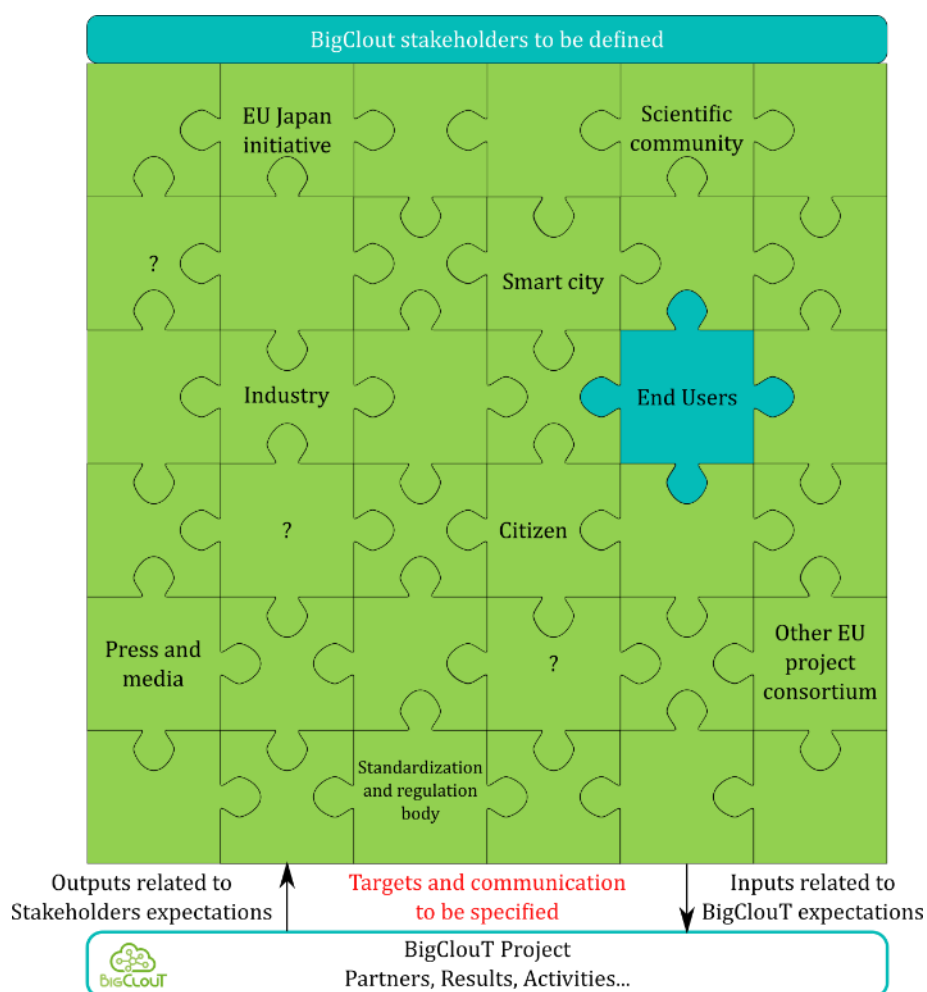


FIGURE 1-2: STAKEHOLDERS TO BE CONSIDERED

General expected inputs from stakeholders will be specifications (i.e. user requirements), sponsoring, logistic/materials support (i.e. for field trials) or business issues. Events and surveys organized during the second period are presented in section 1.3.

General expected outputs from BigClouT will be communication (i.e. results), joint actions (i.e. field trials) or business opportunities (i.e. licencing).

1.1.2 *BigClouT stakeholders' profiles*

The BigClouT stakeholders are the support/target for dissemination and exploitation activities. Two distinct stakeholder profiles have been identified at the beginning of the project in order to define a specific strategy to manage inputs/outputs expectations toward the target stakeholder: "informed stakeholder" and "involved stakeholder".

Expectations	Informed stakeholder	Involved stakeholder
Example of inputs/roles expected from the Stakeholder to BigClouT		
Is informed of the global progress of the project.	✓	✓
Could be an indirect support to the project.	✓	✓
Advisory capacity and strategic recommendations linked to the main objectives, and suggestions for their potential exploitation and implementation.		✓
Participation to dedicated stakeholders workshop.		✓
Involvement by signing a letter of interest guarantying the main rules in confidentiality, conflict of interest and conditions to negotiate privileged access to the results.		✓
Example of outputs expected from BigClouT to the Stakeholder		
Send general information such as: <ul style="list-style-type: none"> • Newsletters • Public deliverables • Restricted deliverables 	✓	✓
Organization of stakeholders' private workshops.		✓
Consultation at key steps of the project (technical or business aspects).		✓

TABLE 1: STAKEHOLDER PROFILES - INFORMED OR INVOLVED

1.2 BigClouT Key Stakeholders

Many stakeholder groups revolve around the BigClouT results with different roles. A first analysis of stakeholders was performed in the ClouT project. In the first months of the BigClouT project, the information collected during the ClouT project was reviewed and updated according to new analysis activities and discussions among partners. The list of groups thus identified was confirmed, refined and enriched during the second period thanks to the events and surveys organized and to the work carried out on the impact assessment.

In the tables below, we depict the stakeholder groups and for each one of the above-mentioned groups we provide the following information regarding the BigClouT results:

- Influence/Power – the ability of the stakeholder to affect the adoption of BigClouT results. In the table together with a short description we provide the Consortium assumption on the level of the influence/power exercised by the stakeholder: high, high, medium, low.

- Position – why the stakeholder should support the BigClouT product and its enabled services. This is key to understand what kind of support we would expect from the stakeholder.
- Interest - the stakeholder's interest towards the adoption of the ClouT product. Also, in this case we specify level of interest: high, medium, low.

Stakeholder	Influence/Power	Position	Interest
Cities / Municipalities	High - They are the main actors in the Smart City context. They plan and execute innovation and strategic plans to enable the development of smart cities. According to the kind of business plan chosen they may be supported in this activity by one or more qualified companies or business organisation to build the city infrastructure and the services (City Service Providers).	City Authorities are interested in the BigClouT results as a whole or as single item.	High – BigClouT supports them in: <ul style="list-style-type: none"> • the use, management and storing of city data in a more efficient way • ‘doing more with less’ thanks to the use of Open Source solutions, by enabling new business models and the reuse of software (e.g. service applications) • Facilitating the development and deployment of new enhanced services for citizens
City Service providers	High - They may be appointed by city authorities to manage and provide specific services within the city: e.g. transportation, parking companies, tourist services, traffic light management and maintenance.	They are mainly interested in specific services that can be offered on top of the BigClouT results these will support them in enhancing the services they offer.	High - <ul style="list-style-type: none"> • New information and data available to enhance services (or offer new ones) • New services available developed by private companies which enhance their own services
Citizens	Medium (indirect) - People living or working in the city are interested in services which may enhance their quality of life and are concerned with public spending.	They fully take advantage of all the services offered by the municipality, private companies or city service providers thanks to the use of BigClouT results. They also benefit from the enhanced management of certain sectors of the public life. thanks to the use of the BigClouT product.	High - <ul style="list-style-type: none"> • Enhanced city services • Enhanced quality of life • Maintained, or even increase productivity of the municipality despite the budget cuts

City visitors	Medium – They are people visiting the city. They are interested in services which may enhance their city visit experience. They will then provide feedback regarding their experience to other potential visitors.	They can benefit from the services offered by the city thanks to the new opportunities available by the use of the BigClouT results	Medium - <ul style="list-style-type: none"> • Enhanced city services for visitors • Enhanced mobility (traffic management, public transportation, parking etc.).
City retailers	Medium - Shops, restaurants within the city. Are interested in a higher number of citizens and visitors to increase their revenues.	They benefit of BigClouT results. Smarter Cities may attract more citizens and visitors. The number of their customers may also increase thanks to an enhanced mobility within the city (traffic management, public transportation, parking etc.)	High - <ul style="list-style-type: none"> • Enhanced services for citizens and visitors (their customers) • Enhanced mobility (traffic management, public transportation, parking etc.).
Event organizers and Congress centers	Medium - Company that manages all types of public, social and company events	BigClouT results can help them to offer a better experience to event participants and, in turn, attract more visitors	High - <ul style="list-style-type: none"> • Enhanced experience for event participants • Attract more visitors
Industrial estate associations	Medium – Associations that are in charge of the animation of an industrial estate	BigClouT results can help them to offer better services to employees working in the industrial estate and in turn attract more companies	High - <ul style="list-style-type: none"> • Enhanced experience for employees working in the industrial estate • Attract more companies
Companies	Medium – Company having its office in the industrial estate mentioned above	Services offered by the industrial through BigClouT results can help them to attract employees	Medium - <ul style="list-style-type: none"> • Enhanced attractiveness for employee
Application developers	Low - Companies or people that develop software services to be offered to cities, city service providers, retailers, businesses and citizens.	They have a new opportunity to develop services using the data and tools available through BigClouT.	High - <ul style="list-style-type: none"> • New service development opportunities • Reduced entry risk due to lower costs and faster development • New data available

SaaS, PaaS, IaaS hosting provider	Low – Companies that host SaaS, PaaS, IaaS, like AWS or Google Cloud Platform	They can add the BigClouT platform to their offer	High - New service opportunity
Data analyst	Low - Companies that provide cities with data analytics solutions to take advantage of the large amount of data available through BigClouT	BigClouT results provide a new market opportunity for their competences.	High - <ul style="list-style-type: none"> • Large amounts of data available that need solutions for their analysis • Opportunity to reach a growing market segment in data analysis – the smart city one.
Research centers and Universities	Low - Research labs that need large amounts of data for their research activities	The accumulated data, absorbed and produced by the BigClouT platform can be made available to local universities for their research work (living labs) or for case studies as part of teaching activities.	High - Large amounts of data from the real world available for research activities

TABLE 2: MAIN STAKEHOLDER POWER, POSITION AND INTEREST

In the following figure we place BigClouT main stakeholders on the power/interest matrix in order to better categorize them, visualize their role and select the appropriate actions.

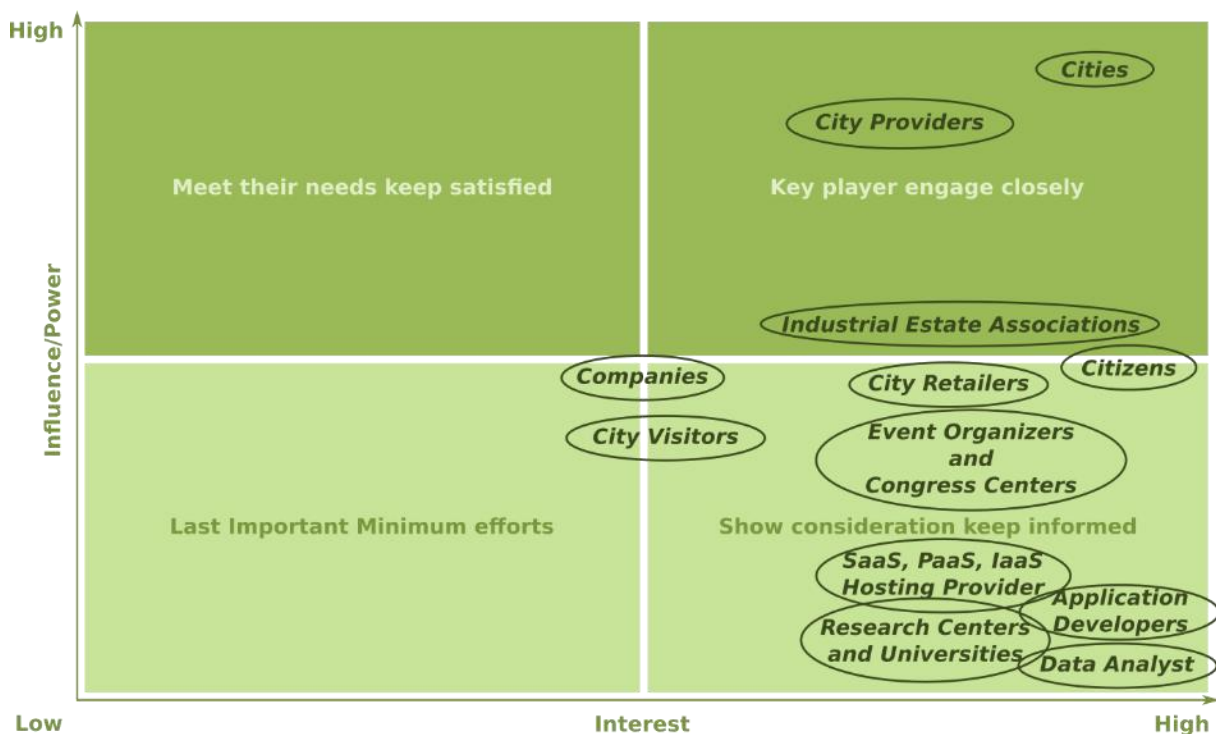


FIGURE 1-3 : STAKEHOLDER POWER/INTEREST MATRIX

1.3 BigClouT stakeholders Involvement

The cities involved in the project are an effective vehicle for making contact with all the stakeholders linked to cities in general. Each of the partner cities has carried out actions to confirm the interest of the identified stakeholders and to better understand their needs.

For the **Grenoble's monitoring of economic impact of events use case**, most of identified stakeholders have already been contacted concerning the BigClouT project. At least one physical meeting per stakeholder has been organised with the participation of the Grenoble Métropole and CEA. A clear interest in the results of the project has been identified. The fact that currently an evaluation tool for the economic impact of events is missing clearly represents a significant problem for event organisers. In October 2016, we asked to the Grenoble Semicon Europa visitors eight questions:

- Where are you from?
- Is this your first time in Grenoble?
- Do you regularly attend similar events abroad (exhibitions, conferences, etc.)?
- Do you use smart phone applications for your business trips?
- Would you be interested in a phone application to guide you around Grenoble (transportation from hotel to conference centre, souvenir shops, restaurants, etc.) during your time in the city?
- Would you be interested in phone application that combined professional usage (eg. A networking tool for exhibitions) and a tool to guide you around the city?
- Would you be interested in receiving offers giving you discounts in local shops & restaurants?

- Would you give some “anonymized” personalized information (amount you spend during your stay in Grenoble at restaurants, hotels, shops, etc., access to your calendar) for the benefit of receiving further better services during your stay in Grenoble such as personalized offers, transportation service, etc.

We got a positive feedback from potential users through this Survey. All stakeholders are interested in developing an app that visitors to the Area can use during events (plans of the exhibition, networking tools...) and also while they are staying in the city (transport, restaurants, shops...)

Concerning the **Grenoble’s monitoring of industrial estates use case**, As the most organised industrial estate in the city area, it has been decided to use the Inovallée area as a test case. It is therefore with the management of this estate that discussions have progressed the most. Three physical meetings have been organised with the management of the Inovallée zone. During the discussions, we have steered the project in a direction in which we will mainly focus to put in place a tool which could be used by the people working in the zone. In April 2017, we asked 6 questions to Inovallée employees. 61 people have been interviewed. The questions were:

- Do you have a smartphone?
- Do you use apps? What kinds?
- Would you be interested by an Inovallée app?
- What kind of information would you like find on this app?
 - Food: Sites of restaurants and food trucks / Alerts in case of problems / Opening hours / Menus and prices
 - Travel: Information about different transport options (alerts in case of problems, predicated journey times) / Real time traffic information
 - Events and activities
 - Training
 - Sporting activities
 - Cultural activities
 - Work in the area
 - A plan of Inovallée
 - The contact information for the Inovallée team
 - The contact information for the different companies on the zone
 - Local shops
 - Job offers for the zone
 - News from Inovallée
 - Information about childcare centres
- Anything else you’d like to see on the app?
- Would you be interested by a conciergerie? A pick-up point for parcels?

83% of interviewed people would be interested by an Inovallée app. Among those who are interested, most of them would like find food information on this app, and especially information about menus and prices (78%). Otherwise, lots of them would be interested by travel information on the Inovallée app (more than 70%). 81% of the interviewed people would like information dealing with local shops on this app whereas only 41% of them would be interested by contact information for the Inovallée team. Discussions has begun with a second industrial estate: the Espace Comboire. It consists in an ambitious project to create a « smart industrial estate » focused on customer service and cross-canal retail. We expect to have the first « smart retail zone » in France. Surveys and studies are currently underway. So we’ll have to look at results of studies and surveys, and to use Inovallée experience to help define the best solutions for this very different zone.

Concerning the **Tsukuba's use cases**, we are considering to have a combined trial by merging the two initial use cases in the concierge service one. Several meetings took place with city officials in Tsukuba City, and we received feedback regarding the trial plan, such as possible information sources, use cases, etc. According to the result, we put posters in various places in the city, such as station, conference halls, University of Tsukuba, etc. In addition, we put flyers in different places in the city. On the posters and flyers, we put QR code whereby users can install the smartphone app in their own devices. In total 50 posters and 8,000 flyers were distributed at the places below:

- Tsukuba City Hall
- TSU campus
- Stations in Tsukuba (4 stations)
- Mt. Tsukuba (4 places)
- Bus (3 routes)
- Tsukuba International Congress Center
- Souvenir shops
- Hotels (19 hotels)
- Housing for Foreign Researchers (2 places)
- Tsukuba international association.

We had realized that stakeholder' support was necessary because it would be very hard to recruit participants from foreign visitors. Tsukuba University and Tsukuba city officers have therefore had more than 20 meetings with the stakeholders to ask for cooperation and to get feedback to the trial plan. The trial plan was refined based on this ongoing feedback process. We have had a small trial with students in University of Tsukuba to collect initial feedback that we use to refine the user interface of the smartphone app. We then have had a second small scale trial with foreign visitors. One clear lesson is related to recruitment which was lower than hoped. One major reason is the language barrier: we assumed English as the basic language in the app and advertisement, whereas it turned out that most of the foreign visitors in Tsukuba City are Chinese. To recruit more participants, we need to support different languages so that people from different countries can participate readily.

For the **Bristol's smart energy use case**, BIO has been planning the initial engagement with the Bristol Partners; Bristol City Centre, Bristol Energy and Knowle West Media Centre. We have been interacting with Bristol City Council regarding their initial interactions with the citizen recruitment process and engagement. Going forward BIO will be interacting with Bristol Energy and Knowle West Media Centre to remain up to date on the initial citizen recruitment process. BIO will be interacting with Bristol City Centre to ensure the technical deployment is carried out according to their specific necessities for the energy platform. This is an ongoing engagement and will continue throughout the lifetime of the project.

Concerning **Bristol's smart mobility trial**, BIO is currently planning the initiation of the ethnographic interviews and the discussion groups at the University. BIO project managers will be liaising with University staff to ensure the ethical compliances are met before this is undertaken.

For the **Fujisawa's participatory sensing use case**, several ongoing discussions were engaged with various division of Fujisawa city, or other cities, like Chigasaki and Samukawa. Interviews have allowed us to understand what kind of new types of reports are needed, and what kind of functions are expected for easy city management in WEB viewer.

Concerning the **Fujisawa's infrastructure sensing trial**, we have ongoing discussions with Fujisawa IT section, Fujisawa resource coop organization.

2 DISSEMINATION PLAN

2.1 Achievements/opportunities towards objectives

Table 3 is a summary of the achievements on dissemination objectives. These numbers are detailed in following sections.

Activity type	Indicator	Min. Target	Achieved Y1	Achieved Y2	Planned
Public Dissemination	Number of non-scientific publications (articles, press releases, ...)	15	4	5	+10
	Number of newsletters	4	3	3	+1
	Number of videos views	4000	0	0	1 video
	Number of followers on social networks	500	125	180	+100
	Number of deliverables downloaded	200	2	359	+200
	Participation to congresses with BigClouT booth	3	6	13	+3
Scientific dissemination	Number of publications in international conferences	15 incl. 5 joint (EU/JP)	2	7	+8
	Number of publications in international journals	3	1	1	+2
	Number of co-organized international workshops	4	1	2	+1
Standards and regulation	Number of standardization groups that project interact with	4	1 (OSGi)	1(IIC)	+1 (oneM2M)
	Number of participation in EU commission's consultation and other worldwide	4	1(EU) 1(JP)	3	2

	regulatory in the field of interest				
Community Networking and field trials	Number of training and community events co-organized (webinars, workshops, hackathons, etc.)	10 with 20-50 participants	8	3	2
	Number of citizens for e-consultation	1000 EU/JP		1892	
	Number of use case replications in 2 cities or more	2	Not started yet	Ongoing	2
EU-Japan initiatives and policy maker	Number of participations to EU's concertation activities	4	1	2	1
	Number of Joint events with other EU-Japan projects	5	4	0	1
	Number of invitations from governmental institution (embassy, etc.)	5	0	2	3

TABLE 3: BIGCLOUT INDICATORS STATUS

2.2 Public dissemination

The table below lists the main public dissemination activities achieved so far. For complete detailed dissemination activities, please see Table 14.

Activity	Achieved on M24
Non-scientific publications (articles, press releases, ...)	<ul style="list-style-type: none"> • French press conference for BigClouT project launch • Japan press release for BigClouT launch • French press release for BigClouT launch • Pitch in a short pitch event dedicated to IoT • Lokemon field trial press release
Newsletters	<ul style="list-style-type: none"> • ClouT newsletter 4 announcing BigClouT project and stakeholder meeting • EU/Japan centre newsletter • CEA internal Newsletter
Videos	Not release yet

Social networks	<ul style="list-style-type: none"> • 145 followers on Twitter • 35 followers on Facebook
Available deliverables	<ul style="list-style-type: none"> • D1.1 - Analysis of existing reusable European and Japanese assets • D1.2 - Citizen centric use cases and requirements • D1.3 - First BigClouT Architecture • D1.4 - Updated use cases, requirements and architecture • D2.1 - Data collection tools and architecture • D2.2 - Data collection and redistribution framework - demonstration • D3.1 - Big Data Analytics Framework Architecture • D4.1 - Pilot preparation and citizen involvement • D4.2 - Final pilot operation plan • D5.1 - Visual identity and project website • D5.2 - First dissemination and exploitation plan
Congresses with BigClouT booth	<ul style="list-style-type: none"> • IoT Planet, 10/2016, Grenoble • Smart City Expo world congress, 11/2016, Barcelona • French –Japan innovation year, 12/2016, Osaka • IoT Asia, 03/2017, Singapore • IoT week, 06/2017, Geneva • Global city teams challenge, 08/2017, Washington DC • CEATEC, 10/2017, Tokyo • Eclipsecon Europe, 10/2017, Ludwigsburg, Germany • Smart City Expo, 11/2017, Barcelona • Eclipse IoT Days, 01/2018, Grenoble • IoT Asia, 03/2018, Singapore • Smart City Summit, 03/2018, Taipei • Smart City Projects, 05/2018, Shiyogama City

TABLE 4: ACHIEVED PUBLIC DISSEMINATION

Activity	Planned
Newsletters	2
Videos	We plan to build a video on the base of the comic book.

TABLE 5: PLANNED PUBLIC DISSEMINATION

2.2.1 1st BigClouT Press conference

The first BigClouT press conference took place on the 5th of July 2016 at Absiskey office, in Grenoble.



FIGURE 2-1: PRESS CONFERENCE.

INNOVATION | Ce projet en collaboration avec le Japon et financé par l'Europe a démarré pour trois ans

Avec "BigClouT", le numérique au service du tissu économique de l'agglomération



De gauche à droite : Laurent Gurgun, porteur du projet "BigClouT" et en charge des projets R&D au CEA ; Laurent Hérault, vice-président du CEA-L46 ; Claus Habfast, 12^e vice-président délégué à l'enseignement supérieur, à la recherche, à l'Europe et aux équipements communautaires à Grenoble Alpes Métropole ; Olivier de Bardonnèche, directeur associé d'Absiskey ; Xavier Fabre, directeur général en charge des projets collaboratifs chez Absiskey. Photo L46/L47.

Comment mesurer les retombées du tourisme d'affaires sur le territoire de la Métro et prouver qu'elles sont plus importantes que l'investissement de départ ? Comment optimiser les services et transports en commun dans les zones économiques de l'agglomération ? À entendre mardi Claus Habfast, vice-président à la Métro notamment délégué à la recherche et à l'Europe, la solution s'appelle "BigClouT", un projet reliant internet des objets⁽¹⁾ et big data⁽²⁾ appliqué aux villes intelligentes ("smart cities"). «Vou prédisant le terme « astucieuses ».

Le cabinet d'avocats grenoblois Lucière et Louvier est aussi impliqué, car « une attention particulière est portée sur les données personnelles », qui seront « anonymes » d'après les porteurs du projet, avec la « garantie qu'elles ne sont pas destinées à un usage commercial ».

Comme l'expliquait Laurent Hérault, vice-président (affaires européennes) au CEA-L46, "BigClouT" est en fait la suite du projet "ClouT" et s'appuie sur ses résultats (lire par ailleurs). L'institut de re-

cherche met ainsi « à disposition une plateforme logicielle capable de faire du "plug and play" de toutes les données qui sortent d'une ville pour générer ensuite de nouveaux services qui améliorent la qualité de vie des citoyens ». Il se dit certain que « ce projet aura beaucoup de retentissement à l'international [...] Une fois de plus, c'est l'écosystème grenoblois qui a gagné. Pour nous, c'est quand même une belle vitrine de nos activités internationales. » Grenoble et Bristol (Angleterre) sont deux des villes pilotes de ces expérimentations, avec Tsukuba et Fujiwara au Japon. À terme, les applications développées selon les besoins et spécificités de chacune ("use cases") pourront inspirer les autres.

Néline DELAROCQUE

(1) Réseau reliant les objets devenus connectables.
(2) Analyse de données massives.

Une suite du projet "ClouT"

D'après Laurent Hérault, "ClouT" est un « projet dans le domaine de l'internet des objets appliqué aux villes intelligentes en utilisant les services du "cloud" » pour améliorer la qualité de vie des citoyens, le « premier » de la sorte entre l'Europe et le Japon. Mais encore ? Selon Laurent Gurgun, porteur du projet au CEA, « "ClouT" est une plateforme pour récupérer toutes les données issues de capteurs, bases existantes, appareils, réseaux sociaux, applications mobiles ou pages web. On a fourni des interfaces aux développeurs d'applications pour qu'ils accèdent rapidement à ces données [...] On a l'information à l'instant T. » Concrètement, ces technologies peuvent ainsi être appliquées dans

les domaines de la météo, de la mobilité, de la gestion des déchets, etc. Ainsi, "BigClouT" « reprend ces développements comme une base en y ajoutant les aspects "big data", peu traités dans le premier projet. On aura donc plus de données à traiter et on veut passer du "cloud" à une configuration "informatique brouillard", distribuée un peu partout. C'est-à-dire qu'on ne veut pas que tout se passe dans le "cloud", mais à plusieurs niveaux. S'ajoutent des "aspects intelligents", permettant une prise de décisions rapide à un niveau plus bas », pour plus de réactivité.

N.B.

(1) Stockage sur des serveurs informatiques distants par l'intermédiaire d'un réseau.

FIGURE 2-2: PRESS ARTICLE IN THE LOCAL NEWSPAPER.

2.2.2 1st CEA press release on BigClouT start

The first CEA press release on BigClouT was published on July 26, 2016. It can be consulted here: <https://projectnetboard.absiskey.com/viewdocument/447679-5aa7f4-0ef85f-3af2f4-000003>



FIGURE 2-3: 1ST CEA PRESS RELEASE.

2.2.3 Fujisawa citizun festival 2017

Keio has been collaborating with Fujisawa city regarding participatory sensing trial. For example, “Mina-Repo” is very effective smartphone application for city, citizen, and garbage collectors. “Mina-Repo” is already used in actual users and making actual results as improvement of operational efficiency.

Location Monster (Lokemon) is new application of participatory sensing developed by Keio University Nakazawa laboratory (both iOS version and Android version will be provided). Users can become monsters and can send information about their location to other users via chat. For example, a user who wants to know the congestion situation of a bus stop is asking for the congestion situation to a monster called “Bus-kun”, who is in a bus stop. On the other hand, another user who has become “Bus-kun” gets a chat response. Everyone in the bus stop can make a remark by becoming a “Bus-kun”. Therefore, it is possible to exchange not only the congestion situation but also information unknown only to people in that place such as sensible temperature.

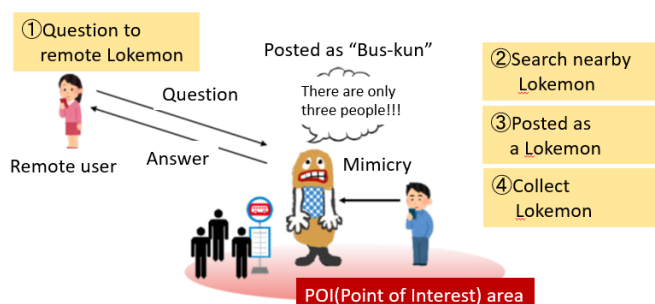


FIGURE 2-4: PARTICIPATORY SENSING APPLICATION “LOKEMON”.

The project has been planning actual trial event of “Lokemon” in the "Fujisawa citizen festival 2017"

Every year, the "Fujisawa citizen festival" crowded with lots of visitors has been held since 1974, citizens themselves plan and participate in order to promote citizen's contact and individuality rich hometown. It is one of the traditional big events for Fujisawa citizens as a culmination of citizen culture.

It is held mainly in the vicinity of Fujisawa station around Saturday and Sunday of the last week of September every year, mainly on events such as big parade, stage event, stall village, etc. around the city.



FIGURE 2-5: "LOKEMON" IS OFFICIAL APPLICATION IN "FUJISAWA CITIZEN FESTIVAL 2017".

2.2.4 Mt. Tsukuba Momiji Festival

The HukuRepo smartphone application was available for the Mt. Tsukuba Momiji Festival. The application collects the problems of foreign visitors to Tsukuba to help solve the city's problems.



Figure 2-6: HukuRepo flyer for Mt. TSUKUBA MOMIJI FESTIVAL

2.2.5 Science Agora

For the third year running, the EU Delegation, together with EU Member State embassies, European and Japanese research, funding agencies and partners, showcased European and

Japanese collaborative projects at the cutting edge of research; how Europe collaborates with Japan, the international nature of modern research and how it transcends many boundaries.



Figure 2-7: Europe in Science Agora 2017 poster

2.3 Scientific dissemination

2.3.1 *Scientific publications roadmap*

An article, titled “Fog at the Edge: experiences building an Edge computing platform”, and written by NK Giang, M Blackstock, R Lea and VCM Leung, is closed to be published on July 2018 in IEEE Edge conference.

Some articles are in preparation and the project of a common article written by several partners is on project.

2.3.2 *Scientific and industrial events participation*

BigClouT partners participated to several scientific events since the beginning of the project (see section 2.6 for the detailed list) and made specific presentation of the BigClouT project:

TABLE 6 SCIENTIFIC PUBLICATIONS ROADMAP

N°	Name	Date	Place
1	33th JSSST Convention	09/09/2016	Sendai, Japan
2	UbiComp, Ubintention workshop	13/09/2016	Germany
3	Multi-Agent School in conjunction with JAWS 2016	15/09/2016	Gifu-hashim
4	Mobicom	03/10/2016	New york
5	10th International Symposium on Intelligent Distributed Computing (IDC 2016),	10/10/2016	Paris / France
6	World Congress on ITS	10/10/2016	Melbourne
7	Workshop on Formal and Model-Driven Techniques for Developing Trustworthy Systems (FM&MDD Workshop)	14/11/2016	Tokyo, Japan
8	Embedded Technology 2016	18/11/2016	Yokohama, Japan
9	Smart city planning meeting organized by MIC	02/12/2016	Tokyo
10	JEITA Section on Sensing Solution Technology in CPS/IoT	06/12/2016	Tokyo, Japan
11	"Internet of Things: Evolution in Action		
12	2nd Conference of Technology (organized by Naftemporiki newspaper)"	08/12/2016	Athens, Greece
13	SmartCities workshop (Middleware conference)	13/12/2016	Trento, Italy
14	IoT Idea School for smart city	22/02/2017	Keio University
15	Fujisawa IT Leader Seminar	10-mars-17	Fujisawa, Kanagawa

16	IoT Asia	29/03/2017	Singapore
17	The 32nd ACM SIGAPP Symposium on Applied Computing (SAC2017)	03/04/2017	Marrakesh, Morocco
18	OU-NII-Lero Workshop on Software Engineering for Cyber-Physical-Social Systems (CPSS)	07/04/2017	Abu Dhabi - UAE
19	6th asian workshop on advanced software engineering (awase17)	04/05/2017	Chongqing, China
20	IIC consortium meeting	June 2017	Berlin
21	IoT week	06/06/2017	Geneva
22	Workshop on smart cities organized by ETSI	07/06/2017	Bordeaux, France
23	EclipseCon France	21/06/2017	Toulouse, France
24	BIOT 2017: The 4th IEEE International COMPSAC Workshop on Big Data Management for the Internet of Things	04/07/2017	Torino, Italy
25	High Performance Services Computing and Internet Technologies (SerCo 2017)	17/07/2017	Genoa, Italy
26	IEEE compsoc workshop(Biot)	04/08/2017	Italy
27	Global City Teams Challenge	28/08/2017	US / Austin
28	CEATEC	03/10/2017	Tokyo, Japan
29	EU-Japan cooperation (panel at CEATEC 2017)	06/10/2017	Tokyo, Japan
30	EclipseCon Europe	24/10/2017	Ludwigsburg, Germany
31	ITS World Congress	31/10/2017	Montréal, Canada
32	Smart City Expo	14/11/2017	Barcelona, Spain
33	hub:raum IoT Academy	23/11/2017	Athens
34	IIC plenary meeting	Dec. 12017	CA, USA
35	Smartcities workshop in IEEE big data conference	11/12/2017	Boston, USA
36	Eclipse IoT Days Grenoble	18/01/2018	Grenoble
37	10th International Joint NII-LIP6 Workshop on Multi-Agent and Distributed Systems	22/01/2018	Paris
38	Smart City Summit in Taipei	March 2018	Taipei
39	IPSJ	March 2018	Tokyo
40	IoT Asia	21/03/2018	Singapore
41	User interfaces for spatial and temporal data analysis	11/03/2018	Tokyo
42	IEICE SIG-SC	16/03/2018	Tokyo
43	IoT-EPI AG2 on standardization and Smart Cities and Communities	26/04/2018	Brussels
44	Smart city projects	24/05/2018	Shiyogama city

Planned events:

N°	Name	Date	Place
1	Launch of UTA	Sep. 2018	Tokyo
2	IEEE SCI (Smart City Innovation)	08/10/2018	China
3	Smart city Expo	12/11/2018	Barcelona
4	High Level Forum	12/11/2018	Grenoble

2.3.2.1 Smart City Expo Congress 2016 in Barcelona

The congress was held in Barcelona from 15th to 17th of November 2016. It brought together over 400 global influencers and innovators to share knowledge, debate the challenges faced by our cities, encourage out of the box thinking and inspire a worldwide call for action in order to develop smarter and more sustainable cities.

BigClouT's EU Coordinator and partner, Grenoble Alpes Métropole shared a booth for this occasion.

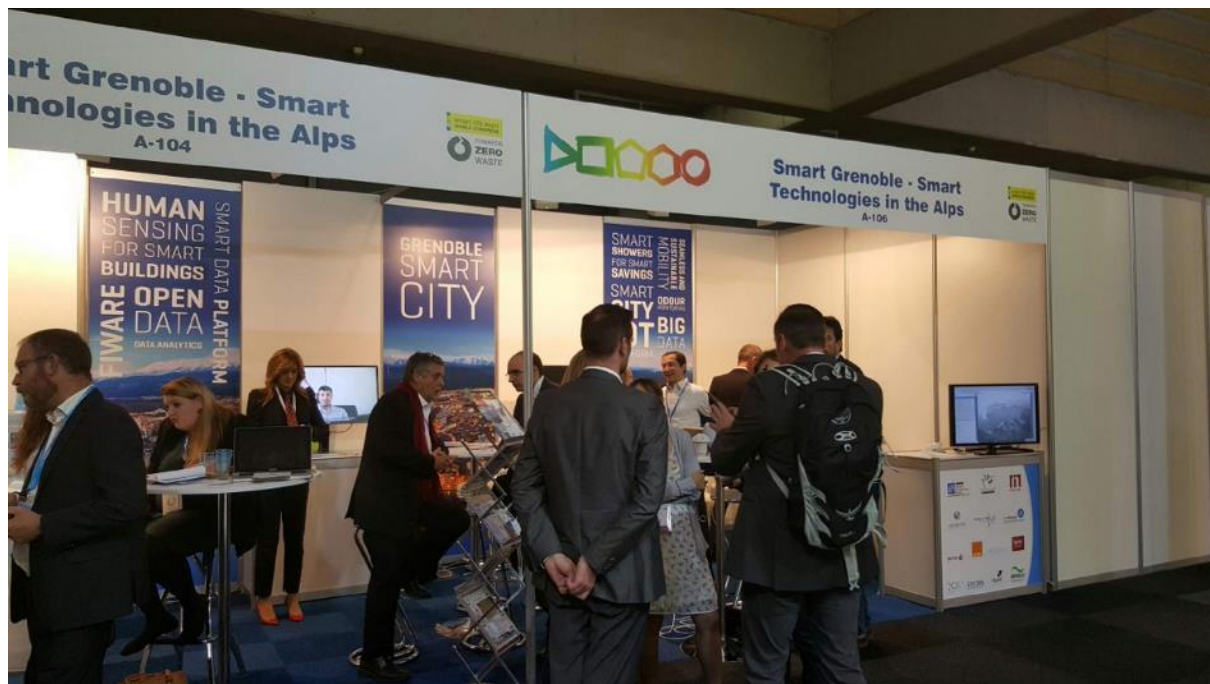


FIGURE 2-8 : GRENOBLE BOOTH AT SMART CITY EXPO

2.3.2.2 IoT Asia 2017

IoT Asia was held in Singapore from 29th to 30th of March 2017. It provides insights for 4,500 attendees across the entire IoT value chain, addressing the interests of technology solution providers and enablers as well as end-user and potential IoT technology adopters across multiple industries.



FIGURE 2-9: MINALOGIC PAVILION AT IOT ASIA



2.3.2.3 Global City Team Challenge 2017

The Global City Teams Challenge (GCTC) program is a collaborative platform for the development of smart cities and communities, led by National Institute of Standards and Technology, a bureau of U.S. Department of Commerce, in partnership with other U.S. federal agencies including National Science Foundation, International Trade Administration, and National Telecommunications and Information Administration. It enables local governments, non-profit organizations, academic institutions, technologists, and corporations from all over the world to form project teams, or “action clusters,” and “SuperClusters,” to work on ground-breaking Internet of Things (IoT) and Cyber-Physical Systems (CPS) applications within the city and community environment. The event took place in Austin on August 28 and 29.



FIGURE 2-10: BIGCLOUT BOOTH AT GLOBAL CITY TEAM CHALLENGE 2017

2.3.2.4 CEATEC 2017

CEATEC JAPAN 2017 was held for four days from October 3 to 6, 2017 at Makuhari Messe in Chiba, Japan. 2017 marks CEATEC JAPAN's 18th year.

In 2017, as a forum for connecting policies, industries and technologies by breaking down barriers, CEATEC JAPAN has presented a global showcase for Japan's growth strategies and Society 5.0, a vision of the ultra-smart community of the future in which IoT, robots and AI will all play important roles.



FIGURE 2-11: BIGCLOUT BOOTH AT CEATEC 2017

2.3.2.5 Smart City Expo Congress 2017 in Barcelona

The congress was held in Barcelona from 14th to 16th of November. The 2017 edition was a record-breaking edition of the world's leading event for cities with 18,754 visitors, 675 exhibitors, 420 speakers, 700 cities, +120 countries and +50 side events.





FIGURE 2-12: BIGCLOUT BOOTH AT SMART CITY CONGRESS 2017

2.4 Standardisation and regulation

2.4.1 *General Background*

Generally, there are three categories about standardization activities, 1st one is de jure standard, 2nd one is forum standard, and 3rd one is de fact standard.

Especially, there are some activities regarding IoT area in each category as yellow colour in Table 7.

Categories	Meaning	Examples
De jure Standard	Public standard. A standard created by procedures publicly cited and published by international standard organizations.	ISO, IEC, ITU, IEEE  
Forum Standard	A standard created by organizing forums and gathering interested companies.	DVD, Wi-Fi, Bluetooth  
De Fact Standard	Standards of individual companies, etc. became dominant in the market by selection and selection of markets.	Windows 

TABLE 7: CATEGORIES OF STANDARDIZATION ACTIVITIES

2.4.2 *Standardization activities in ClouT and BigClouT*

Participation to standardisation events, monitoring and contribution to standardisation are key aspects of ClouT's dissemination strategy that will create the maximum international impact of the work carried out in the project. BigClouT partners are participating to some standard organizations. Especially we are focusing following standard organization relating IoT area:

Standard organisation	Description	Partner	Contributions (Ideas for discussion)
oneM2M	IoT / M2M related industry standardization organization established from seven standardization bodies worldwide Publish V2 specification in August 2016	NTTRD	Actual Use case from BigClouT pilot cities
IIC (Industrial Internet Consortium)	Not limited to Industry, 26 test beds such as agriculture and smart city are promoted by member members Launched Concept that multiple standards cooperate called Industrial Internet Interoperability Coalition (I3C)	CEA	Smart City Testbed proposal

TABLE 8: CONTRIBUTION CANDIDATES FOR CURRENT PARTNERS' PARTICIPATING IOT STANDARDIZATION ORGANIZATIONS

We had a presentation BigClouT project at Testbed WG session in IIC Dec. 2017 F2F meeting.

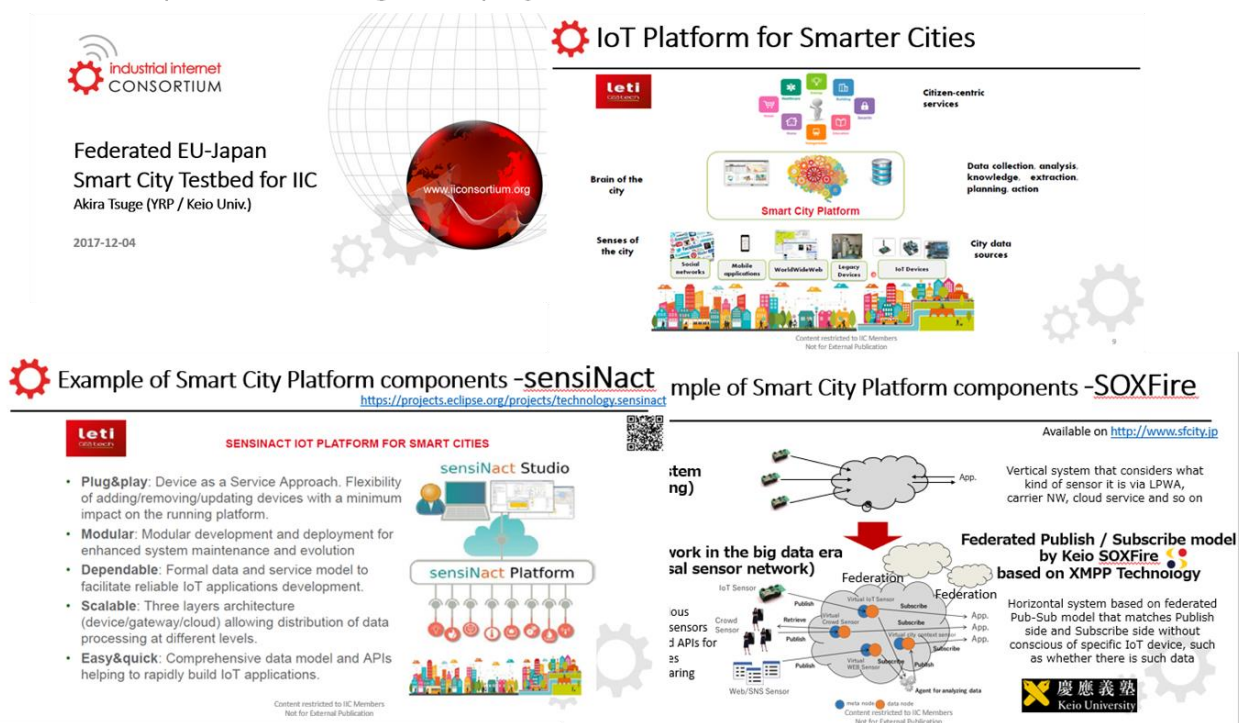


FIGURE 2-13: BIGCLOUT PRESENTATION AT DEC. 2017 IIC F2F MEETING



2.5 Dissemination materials

2.5.1 *Logo*



FIGURE 2-14: BIGCLOUT LOGO

2.5.2 *Public Website*

2.5.2.1 *Composition*

The BigClouT website can be reached at <http://bigclout.eu/>. The content is both in English and Japanese languages and targets all BigClouT stakeholders. It will disseminate information on project life, participation to events and public deliverables.

At the top, a menu bar give access to the different sections of the page (Figure 2-15). Just below, you can find the title of the webpage (Figure 2-16). On the left, two small icons give access to the recent content on Twitter and Facebook.

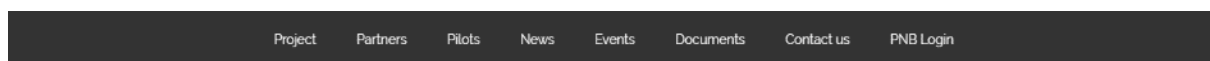


FIGURE 2-15: BIGCLOUT WEBSITE MENU BAR

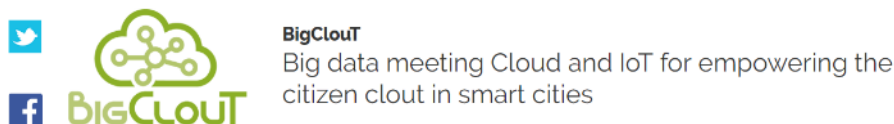


FIGURE 2-16: BIGCLOUT WEBSITE TITLE

Then, a carousel shows 6 last news of the project (Figure 2-17).



FIGURE 2-17: BIGCLOUT WEBSITE NEWS CAROUSEL

Next, two text blocs present an abstract of the project and its objectives (Figure 2-18). By cliquing on the small flag, you can get these elements in Japanese. A video of the ClouT project (Figure 2-19) complete the introduction.





FIGURE 2-18: BIGCLOUT WEBSITE ABSTRACT AND OBJECTIVES



FIGURE 2-19: CLOUT VIDEO

The first section presents the partners of the project (Figure 2-20). By clicking the button labelled “show contact person”, the thumbnails turn to show a picture of the contact for each partner with his contact information. The section is completed with a map showing partners location (Figure 2-21).

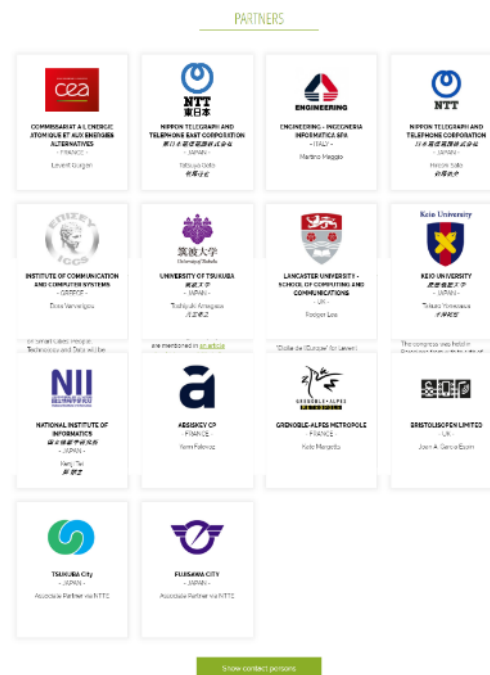


FIGURE 2-20: BIGCLOUT WEBSITE PARTNERS PRESENTATION



FIGURE 2-21: BIGCLOUT WEBSITE PARTNERS MAP

Second section shows pilot cities (Figure 2-22). By clicking the picture of a city, you are redirected on a blog about the specific use-case.



FIGURE 2-22: BIGCLOUT WEBSITE PILOT CITIES PRESENTATION

The third section shows the list off all published news (Figure 2-23). A detailed description of each news can be seen by clicking on the thumbnail.



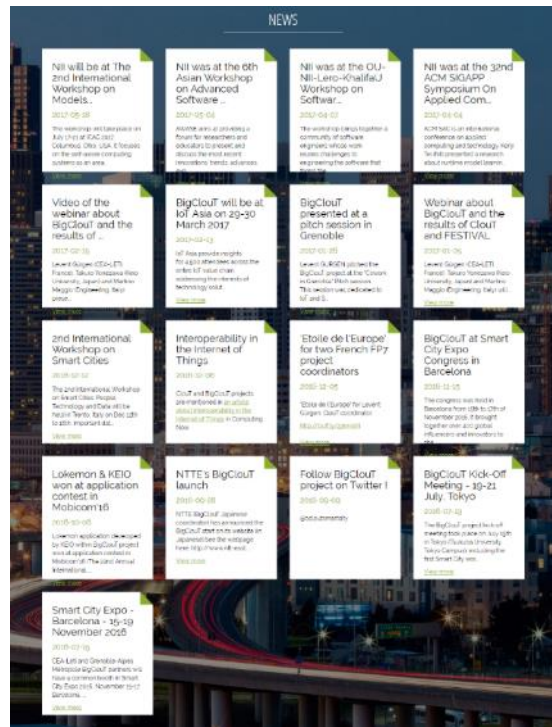


FIGURE 2-23: BIGCLOUD WEBSITE NEWS SECTION

The fourth section is a list of published events (Figure 2-24).

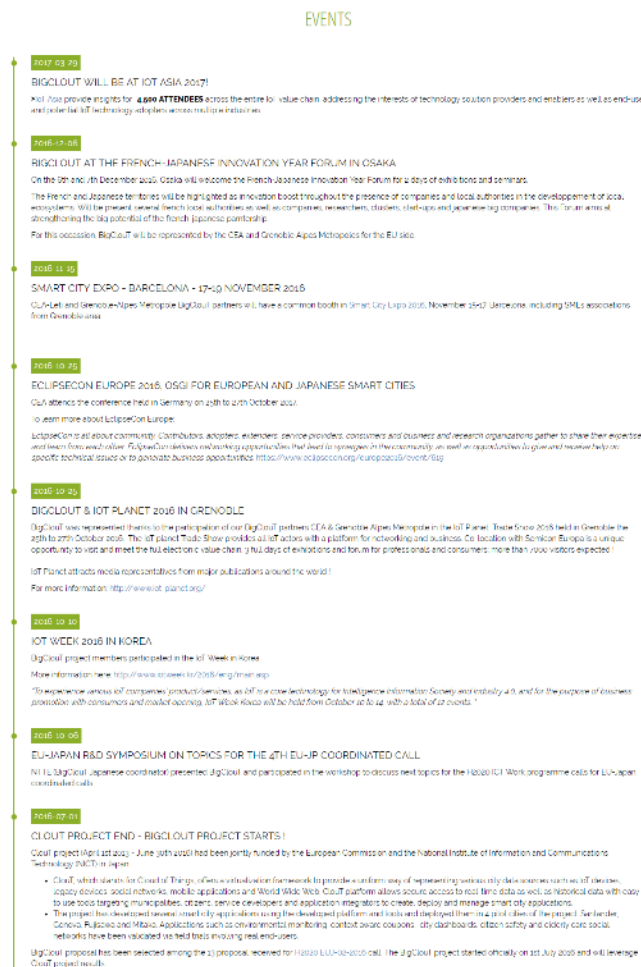


FIGURE 2-24: BIGCLOUD WEBSITE EVENTS SECTION



The fifth section lists published documents (Figure 2-25). Each of them can be download by clicking the associated button on the right.

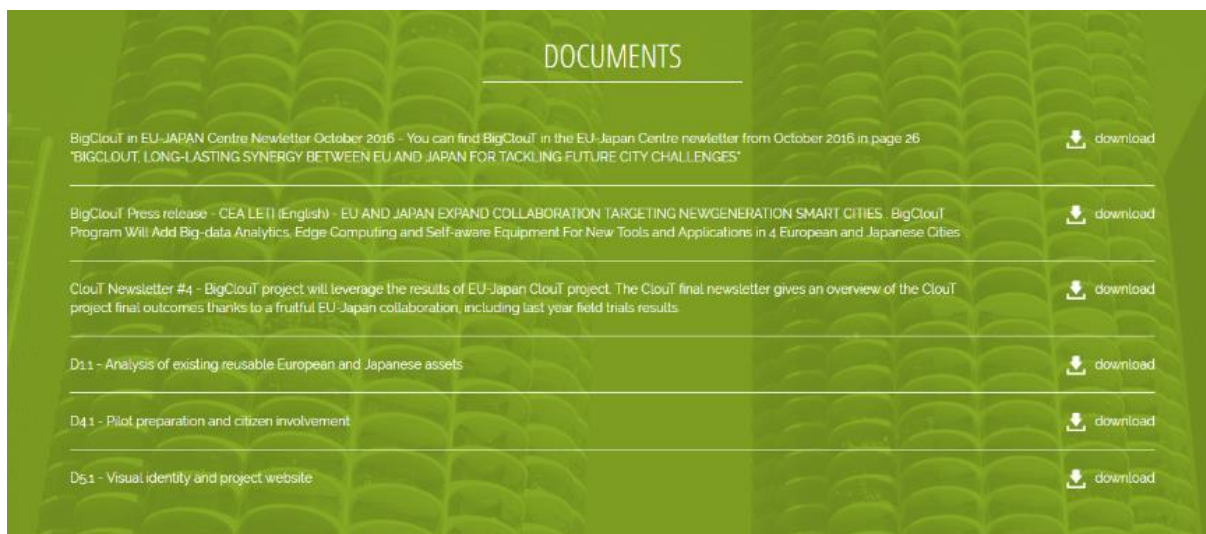



FIGURE 2-25: BIGCLOUT WEBSITE DOCUMENTS SECTION

The last section allows to send a message to the project coordinator (Figure 2-26).

CONTACT US



[Different Image]

FIGURE 2-26: BIGCLOUD WEBSITE CONSTACT SECTION

2.5.2.2 Analytics

The BigClouT website got 5531 visits between M1 and the end of M24. Figure 2-27 shows the repartition of these visits among time. The average number of active users by day is of 6.16 and the average number of sessions per day is of 9.9.

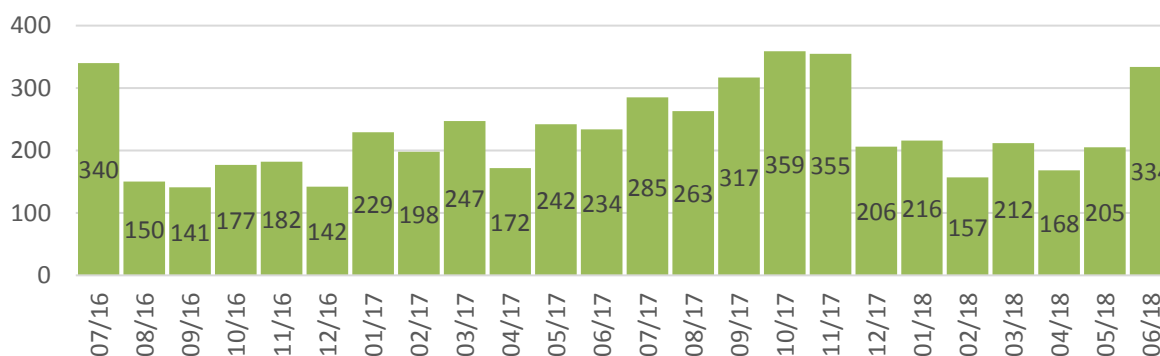


FIGURE 2-27: REPARTITION OF VISITS BETWEEN M2 AND M12

These 5531 visits were performed by 3429 visitors. Much of them came only one time on the website (Figure 2-28). 609 came between 2 and 10 times. The average number of visits per user is of 1.61.

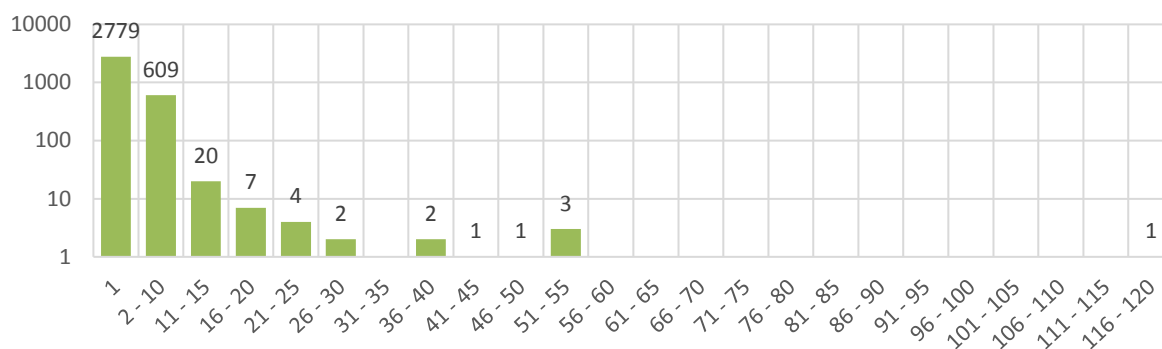


FIGURE 2-28: DISTRIBUTION OF VISITORS BY NUMBER OF VISITS

As shown by Table 9, they mainly come from countries implied in the project, but 31% of the sessions come from other countries, all over the world (Figure 2-29).

Country	Sessions	Country	Sessions
Japan	1915	Belgium	185
France	1211	Greece	181
United Kingdom	307	India	179
United States	276	Spain	161
Italy	192	Singapore	96

TABLE 9: 10 COUNTRIES WITH THE HIGHEST NUMBER OF SESSIONS

We can see that Singapore is well represented. With a deeper analysis, we can observe a picture of affluence from this country during IoT Asia. It shows the importance of this type of events.

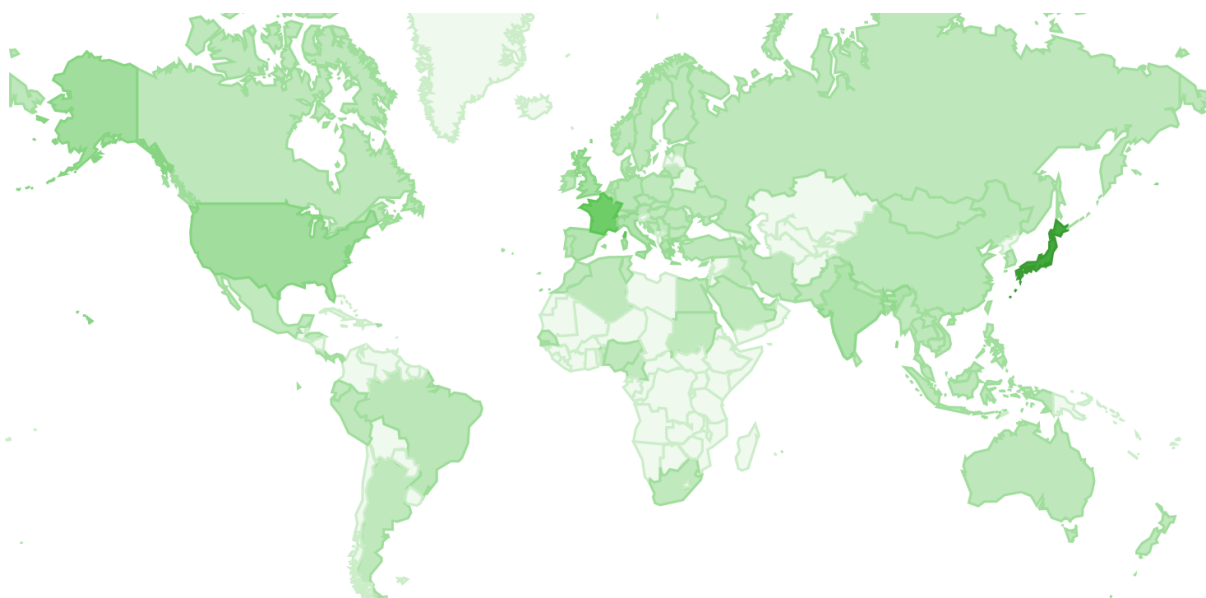


FIGURE 2-29: GEOGRAPHICAL REPARTITION OF VISITORS

Total		5531	340	150	141	177	182	142	229	198	247	172	242	234	285	263	317	359	355	206	216	157	212	168	205	334
Sessions from partner countries:		69%	93%	75%	88%	73%	74%	70%	76%	68%	51%	64%	61%	71%	60%	59%	71%	73%	65%	67%	60%	57%	57%	55%	78%	77%
Pays	%	Total	07/16	08/16	09/16	10/16	11/16	12/16	01/17	02/17	03/17	04/17	05/17	06/17	07/17	08/17	09/17	10/17	11/17	12/17	01/18	02/18	03/18	04/18	05/18	06/18
(not set)	0,3%	18																								
Algeria	0,1%	6																								
Argentina	0,1%	7																								
Australia	0,2%	13																								
Austria	0,1%	8																								
Azerbaijan	0,0%	1																								
Bangladesh	0,0%	2																								
Belgium	3,3%	185																								
Benin	0,0%	1																								
Bosnia & Herzegovina	0,0%	2																								
Brazil	0,9%	51																								
Brunei	0,0%	2																								
Bulgaria	0,0%	2																								
Cameroon	0,0%	1																								
Canada	0,6%	31																								
Cambodia	0,0%	1																								
China	1,0%	53																								
Costa Rica	0,0%	1																								
Croatia	0,1%	3																								
Cyprus	0,1%	7																								
Czechia	0,1%	6																								
Denmark	0,1%	7																								
Ecuador	0,1%	4																								
Egypt	0,1%	6																								
Estonia	0,1%	5																								
Finland	0,7%	38																								
France	21,9%	1211																								
Germany	1,3%	71																								
Greece	3,3%	181																								
Honduras	0,0%	1																								
Hong Kong	0,2%	11																								
Hungary	0,0%	2																								
India	3,2%	179																								
Indonesia	0,4%	22																								
Iran	0,3%	18																								
Iraq	0,1%	5																								
Ireland	0,3%	17																								
Israel	0,2%	11																								
Italy	3,5%	192																								
Japan	34,6%	1915																								
Laos	0,0%	1																								
Lithuania	0,1%	5																								

Luxembourg	0,1%	4
Macedonia (FYROM)	0,1%	3
Malaysia	0,3%	17
Mauritius	0,0%	2
Mexico	0,0%	2
Mongolia	0,1%	4
Morocco	0,2%	12
Myanmar (Burma)	0,0%	1
Nepal	0,0%	2
Netherlands	0,3%	16
New Zealand	0,0%	1
Nigeria	0,1%	5
Norway	0,5%	28
Pakistan	0,3%	15
Palestine	0,1%	4
Panama	0,0%	1
Peru	0,2%	11
Philippines	0,2%	10
Poland	0,1%	6
Portugal	0,3%	15
Puerto Rico	0,0%	2
Qatar	0,0%	1
Romania	0,2%	10
Russia	0,5%	26
Saudi Arabia	0,0%	2
Senegal	0,0%	1
Serbia	0,0%	2
Singapore	1,7%	96
Slovakia	0,0%	2
South Africa	0,1%	8
South Korea	0,7%	41
Spain	2,9%	161
Sri Lanka	0,2%	10
Sudan	0,1%	3
Sweden	0,3%	15
Switzerland	0,4%	20
Taiwan	0,7%	37
Thailand	0,2%	11
Tunisia	0,0%	1
Turkey	0,2%	13
Ukraine	0,1%	4
United Arab Emirates	0,2%	12
United Kingdom	5,6%	307
United States	5,0%	276
Vietnam	0,1%	8



TABLE 10: SESSIONS PER COUNTRY AND PER MONTH

Figure 2-30 and

Document	Total	08/17	09/17	10/17	11/17	12/17	01/18	02/18	03/18	04/18	05/18	06/18
Total	464	28	72	98	47	31	43	9	7	42	24	63
Others	83	11	10	9	6	4	14	3	5	3	6	12
Deliverables	378	17	62	89	41	27	29	6	1	39	18	49
BigClouT in EU-JAPAN Centre Newsletter October 2016	25											
BigClouT Press release - CEA LETI (English)	17											
ClouT Newsletter #4	14											
Comic book - HD (35Mo)	19											
Comic-book - LD (2Mo)	11											
D1.1 - Analysis of existing reusable European and Japanese assets	33											
D1.2 - Citizen centric use cases and requirements	54											
D1.3 - First BigClouT Architecture	95											
D1.4 - Updated use cases, requirements and architecture	6											
D2.1 - Data collection tools and architecture	60											
D2.2 - Data collection and redistribution framework - demonstration	22											
D3.1 - Big Data Analytics Framework Architecture	33											
D4.1 - Pilot preparation and citizen involvement	16											
D4.2 - Final pilot operation plan	7											
D5.1 - Visual identity and project website	21											
D5.2 - First dissemination and exploitation plan	31											

Table 11 show the evolution of downloads per month and per document. At the end of M24, 464 documents have been downloaded, including 378 deliverables.

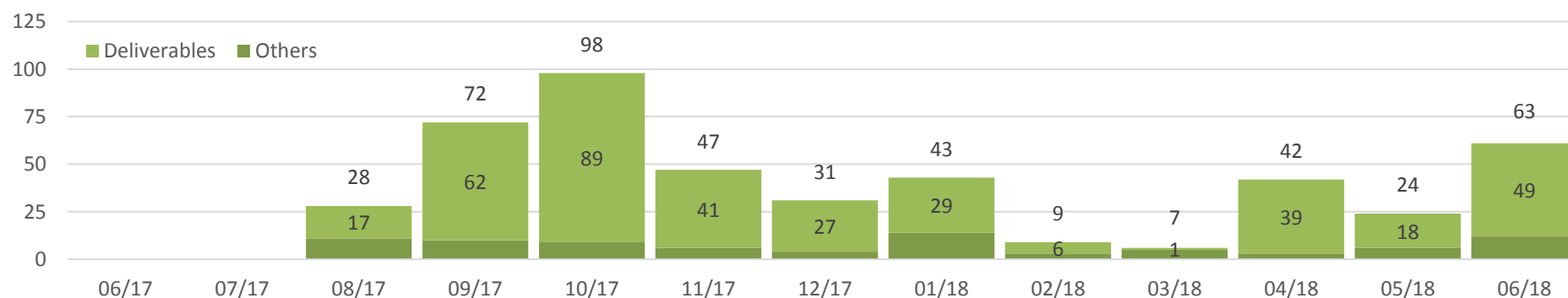


FIGURE 2-30: NUMBER OF DOWNLOADS PER MONTH

Document	Total	08/17	09/17	10/17	11/17	12/17	01/18	02/18	03/18	04/18	05/18	06/18
Total	464	28	72	98	47	31	43	9	7	42	24	63
Others	83	11	10	9	6	4	14	3	5	3	6	12
Deliverables	378	17	62	89	41	27	29	6	1	39	18	49
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D1.4 - Updated use cases, requirements and architecture	6											
D2.1 - Data collection tools and architecture	60											
D2.2 - Data collection and redistribution framework - demonstration	22											
D3.1 - Big Data Analytics Framework Architecture	33											
D4.1 - Pilot preparation and citizen involvement	16											
D4.2 - Final pilot operation plan	7											
D5.1 - Visual identity and project website	21											
D5.2 - First dissemination and exploitation plan	31											

TABLE 11: DOWNLOADS PER DOCUMENT AND PER MONTH

Figure 2-31 and

News		08/17	09/17	10/17	11/17	12/17	01/18	02/18	03/18	04/18	05/18	06/18
Total	229	12	50	18	55	24	14	18	12	9	8	9
44th Fujisawa citizen Festival	28											
2nd International Workshop on Smart Cities	2											
BigClouT at Smart City Expo Congress in Barcelona	2											
BigClouT Kick-Off Meeting - 19-21 July, Tokyo	6											
BigClouT presented at a pitch session in Grenoble	2											
BigClouT will be at IoT Asia on 29-30 March 2017	2											
BigClouT, sponsor of Eclipsecon France 2017	5											
Global City Teams Challenge	43											
HPCS 2017	5											
hub:raum IoT Academy Athens	18											
ICCS presenting its work at the 4th IEEE International ...	11											
IIC quarterly meeting held in Berlin	11											
IoT Week 2017	11											
Mt. Tsukuba Momiji Festival	18											
NII was at the 6th Asian Workshop on Advanced Software Engineering (AWASE17)	3											
NII was at the OU-NII-Lero-KhalifaU Workshop on Softwar...	1											
NII will be at The 2nd International Workshop on Models...	15											
Release of our comic book	41											
Smart City Expo - Barcelona - 15-19 November 2016	1											
Video of the webinar about BigClouT and the results of ...	1											
Webinar about BigClouT and the results of ClouT and FESTIVAL	3											

Table 12 show the evolution of the number of clicks per month and per news.

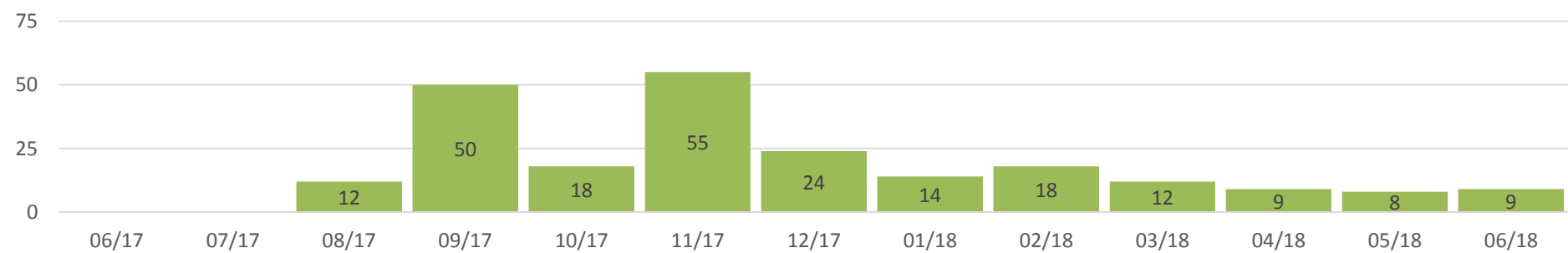


FIGURE 2-31: NUMBER OF CLICKS ON NEWS

News		08/17	09/17	10/17	11/17	12/17	01/18	02/18	03/18	04/18	05/18	06/18
Total	229	12	50	18	55	24	14	18	12	9	8	9
44th Fujisawa citizen Festival	28											
2nd International Workshop on Smart Cities	2											
BigClouT at Smart City Expo Congress in Barcelona	2											
BigClouT Kick-Off Meeting - 19-21 July, Tokyo	6											
BigClouT presented at a pitch session in Grenoble	2											
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BigClouT, sponsor of Eclipsecon France 2017	5											
Global City Teams Challenge	43											
HPCS 2017	5											
hub:raum IoT Academy Athens	18											
ICCS presenting its work at the 4th IEEE International ...	11											
IIC quarterly meeting held in Berlin	11											
IoT Week 2017	11											
Mt. Tsukuba Momiji Festival	18											
NII was at the 6th Asian Workshop on Advanced Software Engineering (AWASE17)	3											
NII was at the OU-NII-Lero-KhalifaU Workshop on Softwar...	1											
NII will be at The 2nd International Workshop on Models...	15											
Release of our comic book	41											
Smart City Expo - Barcelona - 15-19 November 2016	1											
Video of the webinar about BigClouT and the results of ...	1											
Webinar about BigClouT and the results of ClouT and FESTIVAL	3											

TABLE 12: CLICKS PER NEWS PER MONTH

Figure 2-32 and

City page			08/17	09/17	10/17	11/17	12/17	01/18	02/18	03/18	04/18	05/18	06/18
Total		260	14	17	22	37	7	16	8	30	40	36	33
Bristol city area (UNITED KINGDOM)		57											
Fujisawa city area (JAPAN)		73											
Grenoble city area (FRANCE)		73											
Tsukuba city area (JAPAN)		57											

Table 13 show the evolution of the number of clicks per month and per pilot city page.

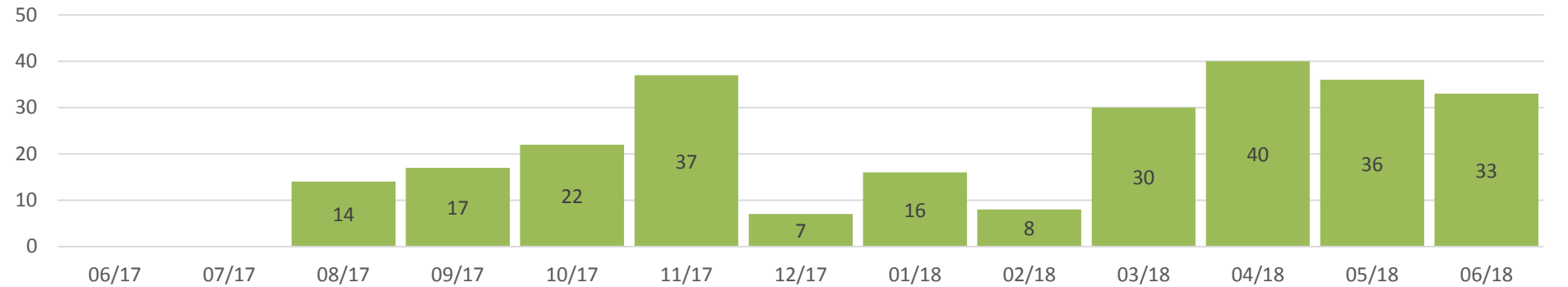


FIGURE 2-32: NUMBER OF CLICKS ON PILOT CITY PAGES

City page			08/17	09/17	10/17	11/17	12/17	01/18	02/18	03/18	04/18	05/18	06/18
Total		260	14	17	22	37	7	16	8	30	40	36	33
Bristol city area (UNITED KINGDOM)		57											
Fujisawa city area (JAPAN)		73											
Grenoble city area (FRANCE)		73											
Tsukuba city area (JAPAN)		57											

TABLE 13: CLICKS PER PILOT CITY PAGE PER MONTH

2.5.3 Social Networks

Two social network accounts were created for the project. The first was on Twitter, on M3, and the second on Facebook, on M8. The strategy is to use Twitter for events promotions and to reach people with a technical knowledge, and Facebook for more lasting information and citizens.

2.5.3.1 Twitter

Figure 2-33 shows the evolution of the number of followers between M6 and M24, correlated with the number of tweet per day. It grows from 37 followers on December the 22th, date on which we started to use an analytic tool, to 145 followers at the end of M24.

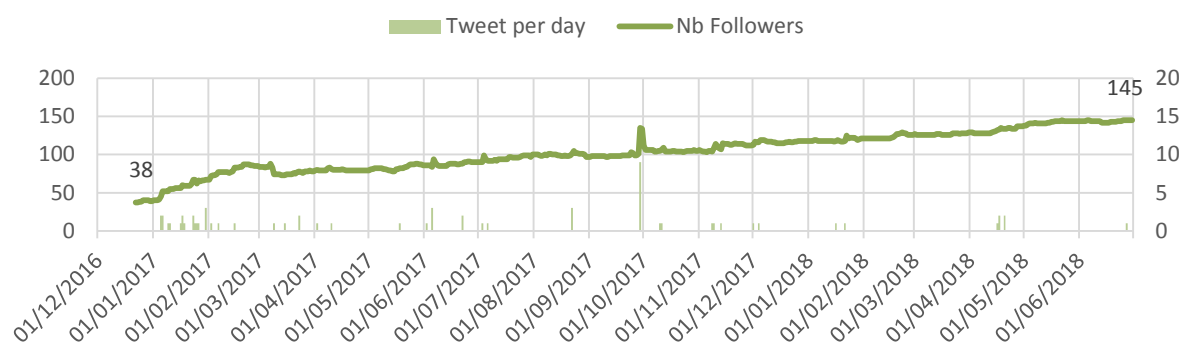


FIGURE 2-33: EVOLUTION OF THE NUMBER OF FOLLOWERS ON TWITTER (M6-M24)

Figure 2-34 shows a histogram of tweets grouped by their number of impressions. Most of them perform between 200 and 1600 impressions. One of them gets 3961 impressions.

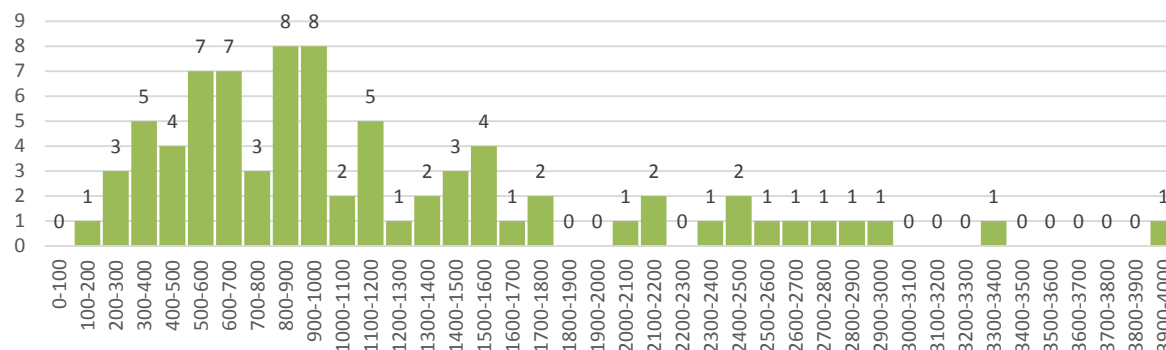


FIGURE 2-34: DISTRIBUTION OF TWEETS IMPRESSIONS (M6-M24)

Figure 2-35 shows a histogram of tweets grouped by the generated engagement.

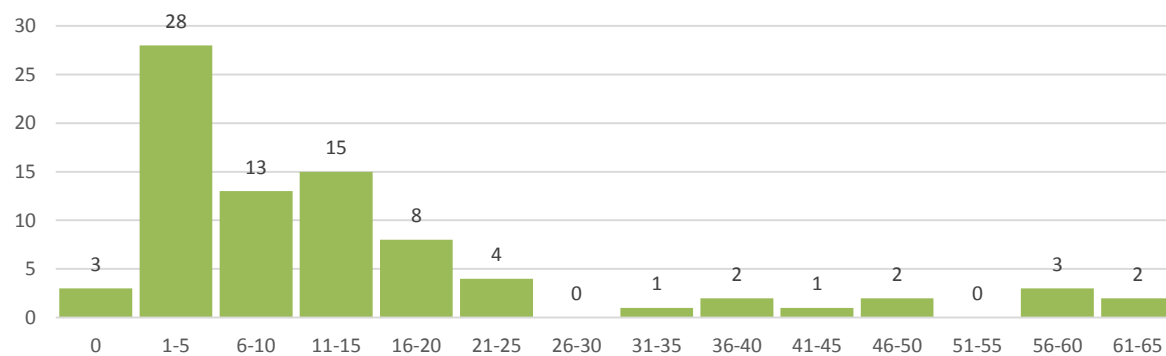


FIGURE 2-35: DISTRIBUTION OF TWEETS ENGAGEMENT (M6-M24)

Figure 2-36 shows a histogram of tweets grouped by their engagement rate. It is generally admitted that an engagement rate below 0.02% is low, between 0.02% and 0.09% is good, between 0.09% and 0.33% is high and over 0.33% is very high. Thus, 96% of the tweets have a high or very high engagement rate.

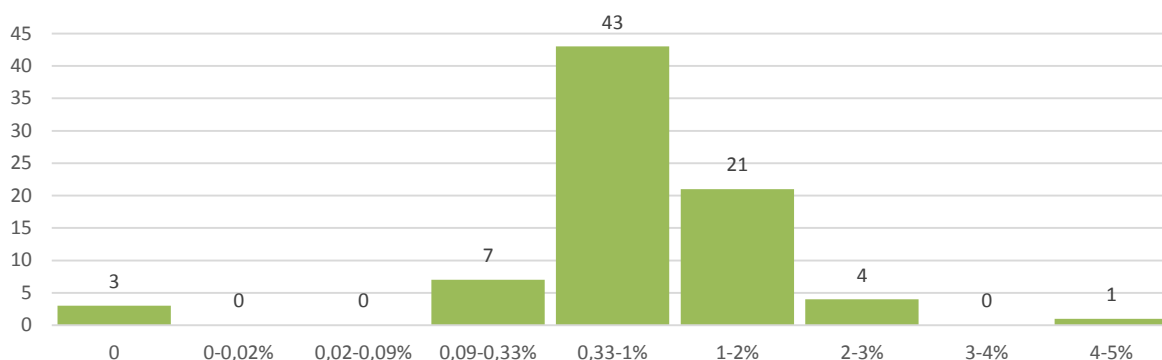


FIGURE 2-36: DISTRIBUTION OF TWEETS ENGAGEMENT RATE (M6-M24)

Figure 2-37, Figure 2-38 and Figure 2-39 respectively show interests, country and gender repartition of twitter audience at M24.

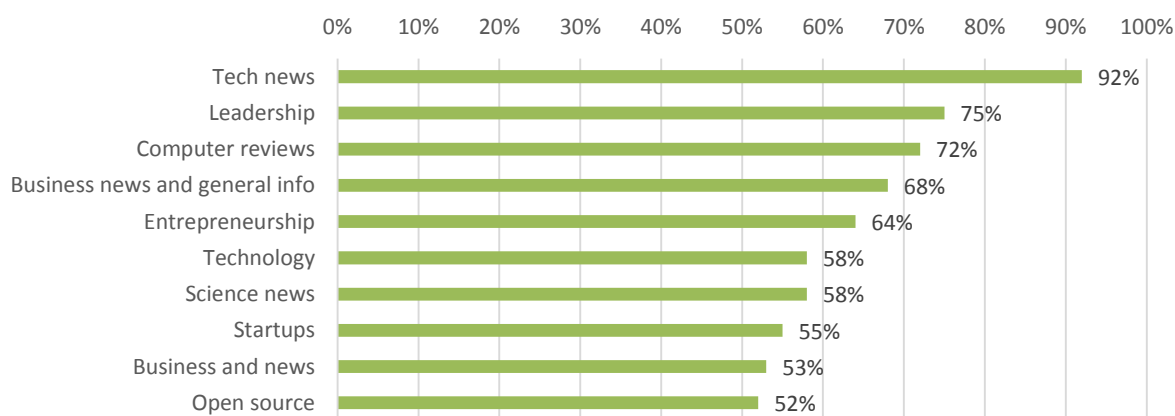


FIGURE 2-37: INTERESTS OF TWITTER AUDIENCE

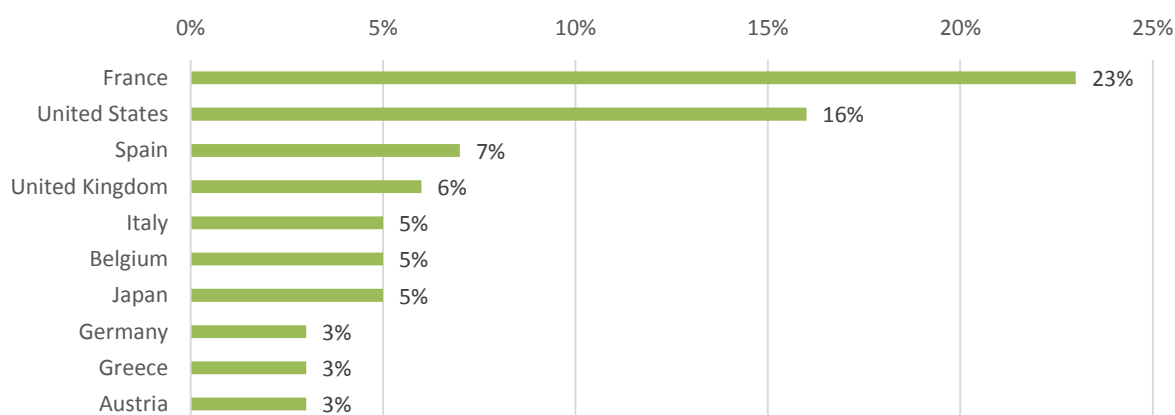


FIGURE 2-38: COUNTRIES OF TWITTER AUDIENCE

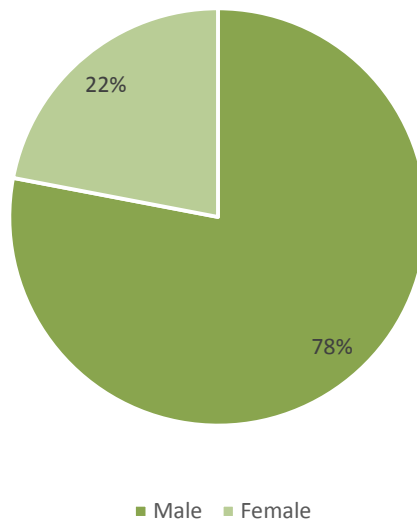


Figure 2-39: Gender of twitter audience

2.5.3.2 Facebook

Figure 2-40 shows the evolution of the number of followers between M8 and M24, correlated with the number of posts per day. It is nearly flat with 31 followers on February the 10, date of creation of the Facebook page, and 35 at the end of M24.

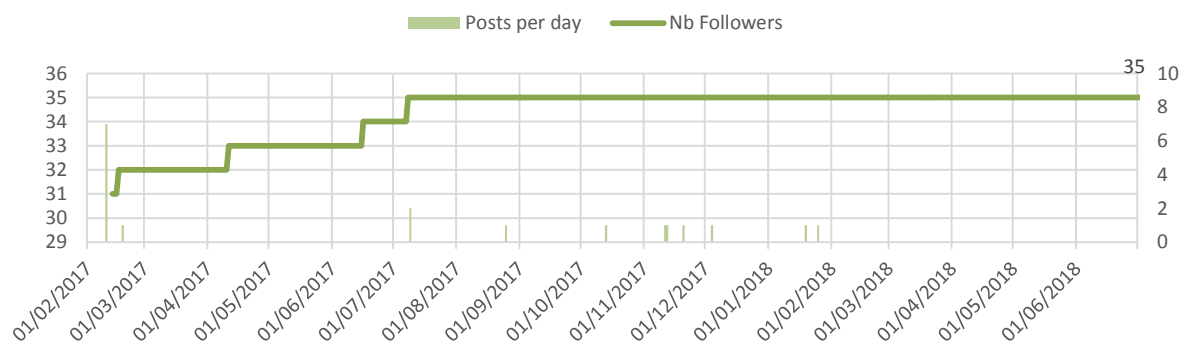


FIGURE 2-40: EVOLUTION OF THE NUMBER OF FOLLOWERS ON FACEBOOK (M8-M24)

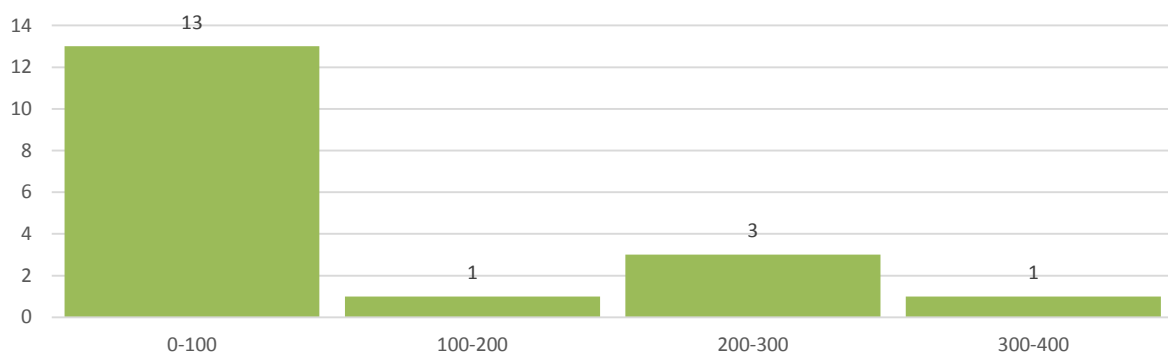


FIGURE 2-41: DISTRIBUTION OF POSTS IMPRESSIONS (M8-M24)

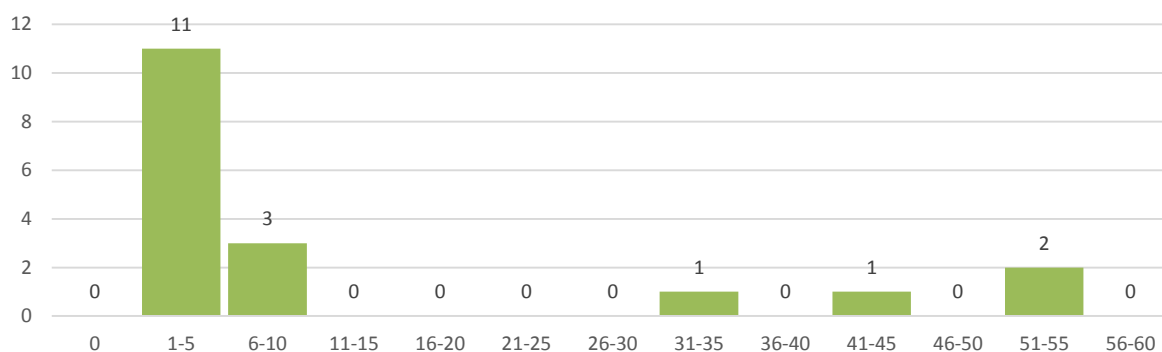


FIGURE 2-42: DISTRIBUTION OF POSTS ENGAGEMENT (M8-M24)

2.5.4 Information card



FIGURE 2-43: FIRST PAGE OF THE INFORMATION CARD



FIGURE 2-44: SECOND PAGE OF THE INFORMATION CARD



2.5.5 Comic book

We produced a comic book to illustrate the use cases and how the BigClouT platform works. It was released on early November 2017.

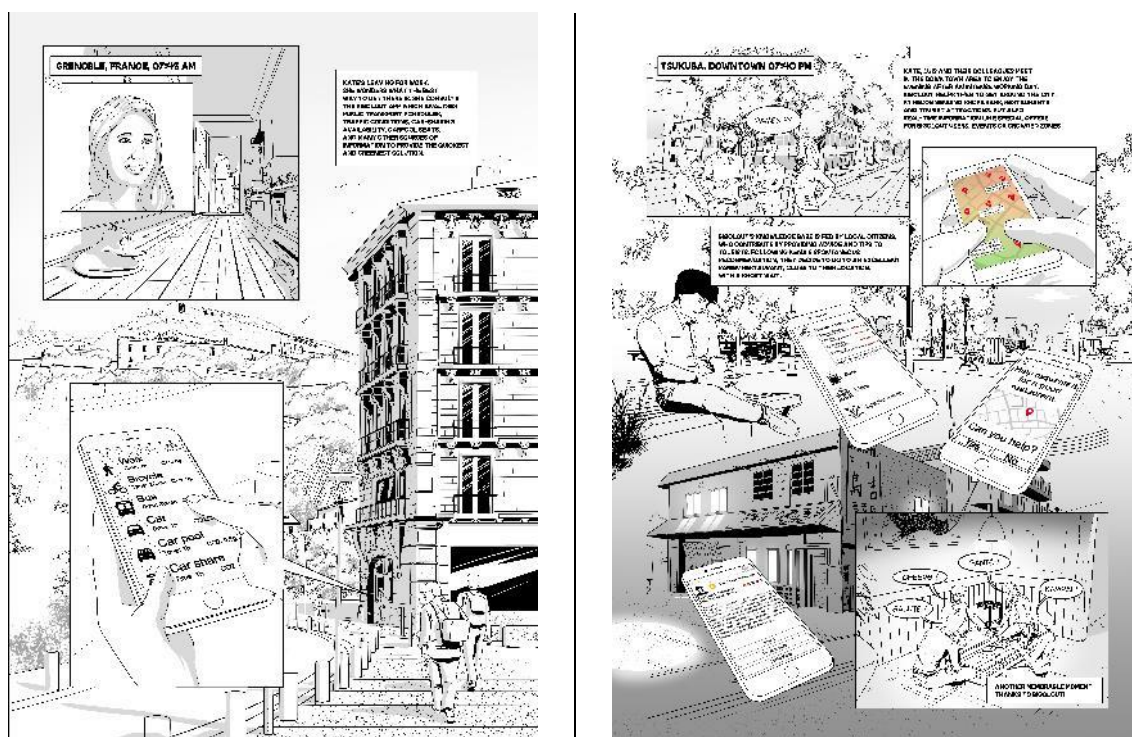


FIGURE 2-45 : SOME PAGES OF THE COMIC BOOK.

2.5.6 Newsletter

Though there was no newsletter about the project progress sent yet, a contact list is kept up to date with email address of people met in congress and BigClouT related business meetings. This contact list is now composed of 155 persons.

2.6 Dissemination activities so far

2.6.1 *Full list of dissemination activities*

No	Type of activities	Main leader	Title	Start Date	End Date	Place	Audience (type, size, countries)
1	Press conference	AK CEA GRE	BigClouT project launch	05/07/2016	05/07/2016	Grenoble	15 people, local press
2	Newsletter	CEA	ClouT newsletter 4 announcing BigClouT project and stakeholder meeting	13/07/2016	13/07/2016		BigClouT community mailing list: 160 contacts
3	Stakeholder meeting	NTTE	Smart City Workshop – BigClouT café	20/07/2016	20/07/2016	Tokyo	
4	Press release	CEA		25/07/2016	25/07/2016		
5	Website	AK	BigClouT website published	29/07/2016	29/07/2016		
6	Clustering	KEIO	CPaaS.io H2020 EUJ-02-2016	04/08/2016	04/08/2016	Keio University	CPaaS.io-EU coord.
7	Seminar	NTTRD	Recent Trend of IoT Standardization- - All about oneM2M Technical Specification Release 2.0 -	09/09/2016	09/09/2016	Tokyo, ARIB	-
8	Twitter	AK	BigClouT Twitter published	09/09/2016	09/09/2016		-
9	Tutorial	NII	33th JSSST Convention	09/09/2016	09/09/2016	Sendai, Japan	Researchers and students
10	Workshop	Keio	Ubicomp, Ubintention workshop	13/09/2016		Germany	
11	Tutorial	NII	Multi-Agent School in conjunction with JAWS 2016	15/09/2016	15/09/2016	Gifu-hashiim	Researchers and students
12	News release	NTTE	BigClouT launch	28/09/2016	28/09/2016		
13	Newsletter	AK ENG	EU/Japan centre newsletter	10/2016			

14	Conference	KEIO	Mobicom	03/10/2016	06/10/2016	New york	5 over 40 applications
15	Symposium	CEA NTTE	EU-Japan R&D symposium + workshop on topics for the 4th EU-JP coordinated call	06/10/2016	07/10/2016	Tokyo	EU-JP, industry and academics + funding agencies
16	Panel	NII	10th International Symposium on Intelligent Distributed Computing (IDC 2016),	10/10/2016	12/10/2016	Paris	Research community on distributed computing
17	Congress/Exhibition	CEA ICCS	IoT Week Korea	10/10/2016	14/10/2016	Seoul,	
18	Congress	Keio	World Congress on ITS	10/10/2016	14/10/2016	Melbourne	
19	Booth	CEA	IoT Planet	25/10/2016	27/10/2016	Grenoble, France	IoT Industry and research (mainly French)
20	Talk	CEA	eclipsecon Europe 2016, OSGi for European and Japanese smart cities - experiences and lessons learnt	25/10/2016	27/10/2016	Ludwigburg, Germany	
21	Invited Talk	NII	Workshop on Formal and Model-Driven Techniques for Developing Trustworthy Systems (FM&MDD Workshop)	14/11/2016	14/11/2016	Tokyo, Japan	Researchers
22	Booth	CEA GRE	Smart City Expo world congress 2016	17/11/2016	19/11/2016	Barcelona	Worldwide smart city community
23	Tutorial	NII	Embedded Technology 2016	18/11/2016	18/11/2016	Yokohama, Japan	Japanese Industries and Academy
24	Meeting	Keio	Smart city planning meeting organized by MIC	02/12/2016	02/12/2016	Tokyo	MIC and researchers
25	Booth	CEA GRE	French –Japan innovation year	05/12/2016	06/12/2016	Osaka, Japan	French-Japanese Industry and academy

26	Workshop	NII	JEITA Section on Sensing Solution Technology in CPS/IoT	06/12/2016	06/12/2016	Tokyo, Japan	Industry
27	Invited speech/presentation	ICCS LANC	Internet of Things: Evolution in Action 2nd Conference of Technology (organized by Naftemporiki newspaper)	08/12/2016	08/12/2016	Athens, Greece	Industry and academia, approx. 150 people, mainly from Greece but also from other countries
28	Workshop	KEIO LANC	SmartCities workshop (Middleware conference)	13/12/2016	13/12/2016	Trento, Italy	Researchers
29	Short pitch	CEA AK	IoT apero pitch	26/01/2017	26/01/2017	Grenoble	Start –ups Potentials users
30	Webinar	CEA Keio	EU-Japan center webinar for FESTIVAL, ClouT and BigClouT	31/01/2017	31/01/2017	Web	EU and JP SMEs
31	Facebook	AK Keio	BigClouT Facebook published	06/02/2017	06/02/2017		
32	Seminar	Keio	IoT Idea School for smart city	22/02/2017	22/02/2017	Keio University	SMEs
33	Exhibition/Conference	CEA	Eclipse IoT Days	09/03/2017	10/03/2017	Grenoble	Eclipse France IoT community
34	Seminar	Keio	Fujisawa IT Leader Seminar	10/03/2017	10/03/2017	Fujisawa, Kanagawa	Municipality staffs
35	Consortium Meeting	CEA	IIC meeting	20/03/2017	24/03/2017	Reston, USA	IIC consortium
36	Exhibition, Congress	CEA	IoT Asia	29/03/2017	30/03/2017	Singapore	Asian lot community
37	Conference	NII	the 32nd ACM SIGAPP Symposium on Applied Computing (SAC2017)	03/04/2017	06/04/2017	Marrakesh, Morocco	Reseachers
38	Workshop	NII	OU-NII-Lero Workshop on Software Engineering for Cyber-Physical-Social Systems (CPSS)	07/04/2017	08/04/2017	Abu Dhabi - UAE	Researchers
39	Workshop	NII	Asian Workshop on Advanced Software Engineering (AWASE17)	04/05/2017	05/05/2017	Chongqing, China	Researchers
40	Consortium meeting	CEA	IIC consortium meeting	12/06/2017	14/06/2017	Berlin	

		Keio					
41	Exhibition, conference	CEA	IoT week	06/06/2017	09/06/2017	Geneve	EU IoT community
42	Workshop	CEA	Workshop on smart cities organized by ETSI	07/06/2017	08/06/2017	Bordeaux, France	
43	Conference	CEA	EclipseCon France	21/06/2017	22/06/2017	Toulouse, France	France Eclipse community
44	Workshop	NTTRD/ICCS	4th IEEE international COMPSAC workshop on big data management for the internet of things	04/07/2017	08/07/2017	Italy	Researchers, Engineers
45	Conference	ICCS	2017 international conference on High Performance Computing & Simulation (HPCS 2017)	17/07/2017	21/07/2017	Genoa, Italy	Researchers
46	Workshop	ICCS	High performance services computing and internet technologies (SERCO 2017) in conjunction with the international conference on high performance computing & simulation (HPCS 2017)	17/07/2017	21/07/2017	Genoa, Italy	Researchers
47	Workshop	NII	The 2nd international workshop on models@run.time for self-aware computing systems in conjunction with ICAC2017	17/07/2017	21/07/2017	Columbus, Ohio, USA	
48	Workshop	CEA	Global city teams challenge	28/08/2017	29/08/2017	Austin, USA	US Smart City community
49	Press release	NTTE/Keio	Press release about Lokemon field trial	04/09/2017		Japan	General Public
50	Community event	Keio	CEATEC	03/10/2017	05/10/2017	Tokyo	Japan ICT community
51	Panel	CEA	EU-Japan cooperation (panel at CEATEC 2017)	06/10/2017		Tokyo	Japan ICT community

52	Booth	CEA	Eclipsecon Europe	24/10/2017	26/10/2017	Ludwigsburg, Germany	Eclipse community
53			44th Fujisawa citizen festival	28/10/2017		Fujisawa	
54		Keio	ITS World Congress	31/10/2017		Montréal, Canada	
55			Mt. Tsukuba Momiji festival	01/11/2017		Tsukuba	
56	Booth	CEA/Grenoble	Smart city expo	14/11/2017	16/11/2017	Barcelona	Smart city community
57	Workshop	ICCS	Hub:raum IoT academy Athens	23/11/2017		Athens	450 attendants
58	Workshop	Keio/Lanc	IEEE big data 2017 workshop on “first international workshop on big data in smart cities and smart buildings (bdsmart) -technologies, management and quality-”	11/12/2017	14/12/2017	Boston, USA	Scientific community in Smart City and big data
59		Keio	IIC plenary meeting	12/2017		Ca, USA	
60	Conference	CEA	Eclipse IoT days Grenoble	18/01/2018	19/01/2018	Grenoble	Eclipse community
61	Workshop	NII	10th international joint NII-LIP6 workshop on multi-agent and distributed systems	22/01/2018	23/01/2018	Paris	Researchers
62	Workshop	Keio	User Interfaces for Spatial and Temporal Data Analysis (UISTDA 2018)	11/03/2018		Tokyo	Scientific community
63	Conference	CEA/TSU	The 80th national convention of IPSJ	13/03/2018		Tokyo	IPJS community
64	Workshop	NII	IEICE SIG-SC	16/03/2018		Tokyo	Japan research community
65	Conference	GRE	IoT Asia 2018	21/03/2018		Singapore	Asian IoT community
66	Conference	CEA/GRE	Smart city summit	27/03/2018		Taipei	

67	Invited talk	Keio	Smart city projects	24/05/2018		Shiyogama city	City staff, City related stakeholders
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TABLE 14: FULL LIST OF DISSEMINATION ACTIVITIES

2.6.2 List of scientific publications (peer-reviewed)

No	Type of scientific publication	Title of the scientific publication	DOI	ISSN or eISSN	Authors	Title of the journal or equivalent	Number, date	Publisher	Place of publication	Year of publication	Relevant pages	Peer-review	open access
1	Publication in conference proceeding / workshop	Soft-Goal Approximation Context Awareness of Goal-driven Self-Adaptive Systems	10.1109/ICAC.2017.25	2474-0756	Aurelien Vialon, Kenji Tei, Samir Aknine	Proceedings of The 2nd International Workshop on Models@runtime for Self-aware Computing Systems at ICAC 2017	17-21 July 2017	IEEE	Columbus, OH, USA	2017	1-6	Yes	
2	Publication in conference proceeding / workshop	Learning Environment Model at Runtime for Self-adaptive Systems	10.1145/3019612.3019776		Moeka Tanabe, Kenji Tei, Yoshiaki Fukazawa, Shinichi Honiden	32nd Annual ACM Symposium on Applied Computing, SAC 2017	Part F128005 2017 Apr 3	Association for Computing Machinery	New York, USA	2017	1198-1204	Yes	Yes
3	Article in journal	A comparative analysis of machine learning algorithms for faults	10.1504/IJNET.2017.084209	1748-1279	Ehsan Ullah Warriach, Kenji Tei	International Journal of Sensor Networks (IJSNET)	Vol.24, No.1	Inderscience Publishers	Geneva, Switzerland	2017	1-13	Yes	No

		detection in wireless sensor networks											
4	Publication in conference proceeding / workshop	An IoT architecture for personalized recommendations over big data oriented applications	10.1109/COMPSAC.2017.59	0730-3157	Palaiokrasas Georgios, Ilias Karlis, Antonios Litke, Vassilios Charlaftis, Theodora Varvarigou	Computer Software and Applications Conference (COMPSAC), 2017 IEEE 41st Annual		IEEE	Torino, Italy	2017	475-480	Yes	No
5	Publication in conference proceeding / workshop	Recommendation service for big data applications in smart cities	10.1109/HPCS.2017.41		Palaiokrasas Georgios, Vassilios Charlaftis, Antonios Litke, Theodora Varvarigou	High Performance Services Computing and Internet Technologies (SerCo 2017) The International Conference on High Performance Computing & Simulation (HPCS 2017)		IEEE	Genoa, Italy	2017	217-223	Yes	
6	Publication in conference proceeding	Recency-based Candidate Selection for			Saki Nagaki, Hiroyuki Kitagawa	Proc. 19th International Conference on	Dec. 4-6, 2017	ACM	Salzburg, Austria	2017	405-414	Yes	No

	/ workshop	Efficient Entity Linking				Information Integration and Web-based Applications & Services (iiWAS 2017)							
7	Publication in conference proceeding / workshop	An Index-based Secure Query Processing Scheme for Outsourced Databases			Kento Akiyama, Chisato Shinozuka, Chiemi Watanabe, Toshiyuki Amagasa, Hiroyuki Kitagawa	Proc. 19th International Conference on Information Integration and Web-based Applications & Services (iiWAS 2017)	Dec. 4-6, 2017.	ACM	Salzburg, Austria	2017	215-223	Yes	No
8	Publication in conference proceeding / workshop	A Development of Participatory Sensing System for Foreign Visitors in PBL			Shuta Nakamae, Wataru Sakamoto, Tetsuya Negishi, Shuhei Goto, Buntarou Shizuki, Chiemi Watanabe, Toshiyuki Amagasa	10th Asian Conference on Intelligent Information and Database Systems (ACIIDS 2018)	March 19-21, 2018	Springer	Dong Hoi City, Vietnam	2018		Yes	No

9	Article in journal	Exogenous Coordination for Building Fog-Based Cyber Physical Social Computing and Networking Systems	10.1109/ACCESS.2018.2844336		Nam Ky Giang , Rodger Lea , And Victor C. M. Leung	IEEE Access	June 2018	IEEE		2018	31740-31749	Yes	Yes
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TABLE 15: LIST OF SCIENTIFIC PUBLICATIONS

3 EXPLOITATION PLAN

In this chapter we provide information on the activities being performed regarding the exploitation and sustainability of the project results. During the first year of the project the partners have mainly worked on: 1) the analysis of the single partners' exploitation plans (chapter 3.1), 2) building the community that is going to support the sustainability of the project results both on the EU and the Japanese side (chapter 3.1.12). The project team has also started working on the analysis of the potential business model for the BigClouT platform starting from the review of the results of the ClouT project (chapter 3.2.1).

3.1 Exploitation

This chapter presents the exploitation plans of the different partners.

3.1.1 *Bristol Is Open*

3.1.1.1 *Partner profile*

Bristol is Open has 15 employees and is based within Bristol with the main stakeholder partners being Bristol City Council and University of Bristol. This places us in the forefront of innovation with the Bristol Council furthering the agenda for Smart City services in the region and university research groups furthering research into smart technologies and connectivity.

Using digital technologies, BiO are creating an open programmable city that gives citizens more ways to participate-in and contribute-to the way their city works. We call it 'City Experimentation as a Service' and it will lead to the creation of a city operating system. Being open guides our procurement, data management, and the hardware and the software we use, which is why our network is being developed with OpenDaylight standards. Being open means we proactively share what we learn with other cities, technology companies, universities and citizens.

3.1.1.2 *Technical outcomes*

Through the project BiO can enable and facilitate a model for the 'experimentation as a service' which has real impact with citizen services and enables our engineers to utilise IoT specific technologies and capture the lessons learned from other pilot cities in the deployment of sensors and the storage of IoT data.

3.1.1.3 *Competence and skills improved*

BigClouT is offering BiO to improve their data visualisation and analysis skills which will contribute to providing a front-end user service for both use cases. Currently the companies' skill set is focused around enabling connectivity and the deployment of sensors. In addition, it enables BiO to experience the role as 'experimenter' and to document the processes which we see may be missing from this service which we are enabling for technology companies and other research projects.

3.1.1.4 *Individual exploitation intentions*

BigClouT results, will be transferred to the engineering and coordination team at BiO. Engineers will have acquired additional data analysis and visualisation skills utilising the assets of the project. While the coordination team will be able to document the process of experimentation. The service provided will also be documented for the purpose of the city council to show improvements that can be made to current services and enabling citizens to make smart decisions and agency whilst navigating and living in a smart city.



3.1.2 *Engineering Ingegneria Informatica Spa (ENG)*

3.1.2.1 *Partner profile*

10,300 employees, 50 sites distributed in Italy, Germany, Spain, Belgium, Republic of Serbia, South America (Brazil and Argentina) and United States, a consolidated revenue portfolio in 2017 of more than 1 billion Euro.

Engineering has a consolidated presence on all vertical markets and operates through its 4 business units - Public Administration & Healthcare, Telco & Utilities, Industry & Services, Finance - supported by cross-business unit centers of competence and by the Research and Innovation Department which, with its 250 resources, has the dual role of promoting research on software at an international level and transferring innovation to the production cycle of the business structures.

The Group operates in the outsourcing and cloud computing market via an integrated network of 4 data centers. Engineering is member of EIT Digital, the Big Data Value Association, the Alliance for the Internet of Things (AIOTI) and is founding partner of the FIWARE Foundation.

3.1.2.2 *Technical outcomes*

Through the introduction in the project of KNOWAGE (the open source suite dedicated to Business Intelligence) Engineering is working on the improvement and extension of ClouT platform in order to be compliant with the most relevant big data and IoT standards. The project is also seen as an opportunity to enlarge the KNOWAGE community in Japan. At the same time Engineering team is improving and extending the CDMI cloud storage, initially developed in ClouT, through the introduction of its counterpart dedicated to edge storage management. Both cloud and edge versions of CDMI are made interoperable in order to provide a more flexible and powerful solution. Interconnection between the CDMI cloud storage and KNOWAGE, provides Engineering the opportunity to validate the development of a complete solution to store, manage and analyse data.

3.1.2.3 *Competence and skills improved*

BigClouT is offering Engineering the opportunity to improve competences and skills related to data storage and analytics not only in terms of technologies that can be adopted for this aim, but also in terms of competencies related to the application of those technologies in different fields, such as the ones object of the project. The possibility to face, understand and solve the different issues that arise in the different application domain is a great added value as it improves internal skills and the capability of developing cross domain solutions.

3.1.2.4 *Individual exploitation intentions*

BigClouT results, both in the form of technical assets and competences and skills, are directly transferred to Engineering Business and Technical Units and towards the companies part of Engineering group. In particular for BigClouT, the results are shared with the PA-Health Business Unit and Municipia which take care of developing Engineering business offer for the PA market. The team also shares its results with the group developing KNOWAGE feeding the BigClouT results into their development activities. The results related to the CDMI storage are passed on to D.HUB the company part of Engineering group which manages the cloud offer.

3.1.3 *Institute of Communication and Computer Systems (ICCS)*

3.1.3.1 *Partner profile*

The National Technical University of Athens (NTUA) is the oldest and most prestigious technical university in Greece. It was founded in 1837 and has since been contributing to the progress of the engineering science in Greece, through the education of young engineers and its multi-faceted



research and development activities. The University comprises nine departments, each one covering a different aspect of the engineering field.

The School of Electrical and Computer Engineering (ECE) of NTUA is well known in Greece and abroad for the research achievements of its faculty members and the good reputation of its students and alumni. The field of Electrical and Computer Engineering spans a wide range of subject areas, like computer science, telecommunications, electronics, automatic control and electric power.

The Institute of Communication and Computer Systems - ICCS (www.iccs.ntua.gr) is a research organisation associated with the ECE school and has about 40 laboratories and research units. ICCS/NTUA participates in BigClouT through the Distributed, Knowledge and Media Systems Group (DKMS) that focuses on research activities related to advanced distributed computing, dealing with topics such as Service Oriented Architectures, Cloud Computing, Internet of Services and Things and Big Analytics.

3.1.3.2 Technical outcomes

ICCS has developed a Recommendation Service based on a distributed architecture, which effectively handles big volumes of sensor data and Open Data and uses state of the art technologies and tools to deliver recommendations applied in applications in the convergence of Internet of Things, Big Data and Smart Cities. The reasoning technique on which this service is based is the Case-based reasoning (CBR), broadly construed as a process of solving new problems based on the solutions of similar past problems (experiences). Coupled with an IoT Node-Red Flows component which wires together the different hardware devices, APIs and web services, and connects the distributed components, CBR is a powerful technique that can offer recommendations for numerous scenarios and use cases across several domains.

3.1.3.3 Competence and skills improved

BigClouT is offering ICCS the opportunity to improve competences and skills related to Machine Learning, Predictive Modelling and Decision Making: handling new technologies, conducting more in-depth research based on past experiences, applying old and current research outcomes to new domains. Moreover, ICCS improved its knowledge and managed technology coupling between Node-Red and Neo4j graph data base and the application of CBR techniques for achieving recommendation service implementation for a wide set of smart city related applications which were originated by the BigClouT use cases.

3.1.3.4 Individual exploitation intentions

ICCS' exploitation will be in the context of the institution's strategic plans, which extend in (a) education, (b) technology transfer towards the national and European IT, (c) promotion of research and enrichment of the Institute's scientific expertise.

Through its participation in BigClouT, ICCS aims to develop innovative mechanisms that may be contributed to the open source community. Since ICCS/NTUA is a non-profit Academic Research Body, we will be releasing all related results as open source contributions under Open Source licenses: more specifically, permissive licenses, as are not restrictive licenses it can be used to create a proprietary good, allowing a commercial exploitation and ensuring high impact.

Furthermore, ICCS exploits the research projects in which it participates in order to connect them with M.Sc. and Ph.D programme theses, for the active engagement of young researchers in a multi-cultural and highly innovative environment.



3.1.4 National Institute of Informatics (NII)

3.1.4.1 Partner profile

As Japan's only general academic research institution seeking to create future value in the new discipline of informatics, NII seeks to advance integrated research and development activities in information-related fields, including networking, software, and content. As an inter-university research institute, NII promotes the creation of the Cyber Science Infrastructure, with a focus on partnerships and other joint efforts with universities, research institutions, industries and civilian organizations throughout Japan. In particular, GRACE Center (Center for Global Research in Advanced Software Science and Technology) of NII is a research center that promotes research, education and practice of software engineering. The GRACE Center focuses on not only general software engineering topics but also topics in advanced networked computing such as Service-Oriented Computing, Cloud Computing, Wireless Sensor Network, Internet of Things and Cyber-Physical Systems. The BigClouT team at NII has joined more than 20 funded projects and published more than 200 papers including ones on top journals and conferences in the above-mentioned topics.

3.1.4.2 Technical outcomes

In the BigClouT project, NII aims to enhance the dependability and flexibility of the programmable smart cities. To that end, NII has been investigating self-adaptive and dependable service composition. The specific focus is to provide consistent configuration of IoT services, though the obtained mechanisms will be generic for other objectives such as adaptive QoS optimization and policy-aware service deployment. It leads to the design and implementation of ECA Adapter including reusing the existing asset ECA Verifier that ultimately provides the self-awareness mechanism, e.g., resolving conflicts among applications in deployment.

3.1.4.3 Competence and skills improved

BigClouT is offering NII the opportunity to improve competences and skills related to self-awareness and self-adaptation through further developing and engineering the needed technologies including analysing the requirements, conducting the design, implementation and integration with other partners' components. The project serves as a practical ground to further develop and apply the existing research results, leading to more mature and evaluated technologies. Through the project, the NII team is improving their knowledge, experience and skills in solving the different issues that arise in the smart cities domain regarding self-awareness and adaptation.

3.1.4.4 Individual exploitation intentions

The development and application of the self-awareness and adaptation mechanism in the smart cities domain is a valuable contribution to the software engineering and IoT community in both research and practice. The empirical experience and knowledge of the resulting assets and technologies are shared not only among the BigClouT project team members but also to public interested parties through publishing and presenting results in conferences and open exhibitions in addition to publish the implementation on open source platforms.

3.1.5 University of Tsukuba

3.1.5.1 Partner profile

University of Tsukuba is one of the oldest national universities and one of the most comprehensive research universities in Japan. It is located in Tsukuba city, which is known as Tsukuba Science City, in Ibaraki prefecture. The university has 28 college clusters and schools with around 16,500 students (as of 2014). The main Tsukuba campus covers an area of 258 hectares (636 acres), making it the second largest single campus in Japan.



3.1.5.2 Technical outcomes

University of Tsukuba (TSU) has been developing a stream processing engine (SPE), which is able to efficiently process JSON streams, and a system for OLAP analysis over streams. Recently, we have integrated these two assets as a unified asset, StreamingCube. It allows us to process streams as ordinary SPEs. Besides, it makes it possible to make OLAP analysis over streams.

As a part of WP3 activities, we have developed an efficient entity linking scheme for time-series documents, such as Twitter streams. Given a series of timestamped documents, it makes it possible to link mentions in the documents to the corresponding entities, e.g., Wikipedia entries, in an efficient way.

In addition, we have developed a couple of smartphone apps for participatory sensing, named HukuRepo post/answer, as a part of the city trial at Tsukuba City.

3.1.5.3 Competence and skills improved

BigClouT offers us opportunities to improve competences and skills in various ways. First, we have improved our competences and skills to handle different kinds of city data using our stream processing engine (JsSpinner and StreamingCube). Second, we have improved our competences and skills for developing and deploying smart-phone apps to carry out city trials.

3.1.5.4 Individual exploitation intentions

We have decided to attend Urban Technology Alliance (UTA). BigClouT offers us opportunities to work with city officials at Tsukuba city. We have been contacting with different divisions at Tsukuba city for possible collaboration for improving city operations by introducing smart city technologies. In addition, we plan to apply for other research grants related to smart city technologies.

3.1.6 Absiskey

3.1.6.1 Partner profile

ABSISKEY Company has established its competencies within the field of innovation management, collaborative project management and dissemination. ABSISKEY provides to the consortium web-based tools for management of resources, knowledge and operational issues adapted to the H2020 legal and financial framework (Project netboard <http://www.projectnetboard.com/en>). A dedicated project manager supports the consortium partners in the innovation management tasks and dissemination activities. ABSISKEY provides a various set of services dedicated to innovation management and project dissemination strategy: impact assessment, risk assessment, web communication (website), dissemination materials (newsletter, flyer, poster, articles).

3.1.6.2 Technical outcomes

ABSISKEY support the consortium for project operational management. We provide Project netboard, a web-based platform dedicated to project activities monitoring and financial follow-up. ABSISKEY is also in charge of dissemination activities and project impact assessment.

3.1.6.3 Competence and skills improved

BigClouT is offering ABSISKEY the opportunity to improve competences and skills related to dissemination and project impact assessment. Thanks to BigClouT we were able to implement these activities in international context. The possibility to face, understand and solve the different issues that arise is a great added value as it improves internal skills.

3.1.6.4 Individual exploitation intentions

BigClouT results in the form of competences and skills related to dissemination and impact assessment activities are directly transferred to the ABSISKEY whole team and directly exploited



for other similar missions. Participation to BigClouT is for ABSISKEY an opportunity to widen its network within IT and Smart city communities and launch further collaborations involving our expertise in innovation strategy, project management, dissemination and project impact assessment.

3.1.7 Grenoble-Alpes Métropole

3.1.7.1 Partner profile

The Greater Grenoble City Area (Grenoble-Alpes Métropole) is a local authority which brings together 49 different municipalities and almost half a million inhabitants who have chosen to work together on key areas for the development of the territory. The City Area is the most important local government structure in charge of areas such as economic development, universities, research, innovation, energy, water and sanitation, rubbish collection, urban planning and transport – all key fields for ‘smart cities’.

Situated in the heart of the Alps and surrounded by mountain ranges, the City Area has a population that is very sensitive to the environment with higher than average rates of recycling and of use of public transport and bikes increasing annually. The City Area is also home to a unique economic ecosystem, representing industry, research and higher education.

3.1.7.2 Technical outcomes

Grenoble-Alpes Métropole’s involvement in the “BigClouT” project allows them to collaborate with world-renowned researchers in Europe and Japan in order to improve public services in the City Area. The project will allow for a mobile phone application to be deployed in an industrial estate in order to improve the quality of services provided to users of the estate and also to allow the City Area and the industrial estate’s management team to better manage their resources and to anticipate needs on the estate.

3.1.7.3 Competence and skills improved

BigClouT allows Grenoble-Alpes Métropole and the stakeholders involved in the project to collect data concerning the use of its industrial estate and eventually to use this data to make decisions about public resources.

3.1.7.4 Individual exploitation intentions

The mobile phone application that is being developed within the BigClouT project will belong to Grenoble-Alpes Métropole but it will be managed by the “Inovallée” industrial estate management team. The Sensinact server, used to collect and to interpret data from users of the app, will also be managed by the Inovallée management team, with technical support from the CEA. Both Grenoble-Alpes Métropole and the Inovallée management team will have access to the data collected.

3.1.8 Nippon Telegraph and Telephone East Corporation (NTT East)

3.1.8.1 Partner profile

NTT East corporation is a member of Nippon Telegraph and Telephone Corporation group, which is responsible for providing regional communication service in the eastern part of Japan, such as broadband access lines and telecommunication service. NTT East holds huge amount of network infrastructure facilities to support over 23 million subscriber lines. With these resources it also plays a role to exploit NTT laboratories’ technologies in the business field and create new business models.

3.1.8.2 Technical outcomes

NA



3.1.8.3 Competence and skills improved

NTT East laid the groundwork of business expansion through field trials by exploring deeper social issues in cities and by strengthening the relationships between cities or stakeholders. For example, in Tsukuba city, we grasp problems that visitors (mainly foreign visitors) experience when they visit foreign country and found a clue of what kind of approach is required to solve the problems. In Fujisawa city, it is verified that participatory sensing is effective to improve city service efficiency and city environment.

3.1.8.4 Individual exploitation intentions

NTT East executed field trials using BigClouT platform or parts of BigClouT technology in the project and verified the effects to solve social issues in cities. NTT East will find further field to implement BigClouT technology by continuously using BigClouT platform or parts of BigClouT technology and also making use of client base and ICT services that NTT East has.

3.1.9 Institute of Communication and Computer Systems (LANCU)

3.1.9.1 Partner profile

Lancaster University (LANCU) is a chartered UK university established in 1964 and based in the north of England. It is a research-intensive university, having a focus on research as well as teaching. It is ranked in the top 10 of UK universities offering a broad-based program across 8 faculty comprising over 40 departments.

The School of Computing and Communications (SCC), part of the Faculty of Science and Technology at Lancaster University, is a world class research School with specializations in a range of computer science subjects including distributed systems. SCC shares its facilities with the industry focused Knowledge Business Centre (KBC) which works as a technology transfer and incubation centre co-located with SCC and supporting a north west England network of 600+ SMEs.

LANCU/SCC participates in BigClouT through the Distributed and Mobile systems group that focuses on research activities related to advanced distributed computing, dealing with topics such as Service Oriented Architectures, Cloud Computing, Internet of Services and Things and Big Analytics.

3.1.9.2 Technical outcomes

SCC has developed a distributed Edge Computing platform (D-NR) suitable for use in Smart City applications. D-NR is based on the open source visual programming tool, Node-RED, which is used in a variety of Internet of Things (IoT) applications and services. D-NR extends Node-RED with support for dynamic edge processing allowing developers to specify constraints, which when resolved using a constraint satisfaction algorithm, result in a distributed deployment. Once deployed, ongoing monitoring re-evaluates the constraints as system changes occur and, when needed, re-distributed processing amongst edge devices. D-NR combines ease of use with simplicity and power to provide a powerful tool for developing smart city applications.

3.1.9.3 Competence and skills improved

The BigClouT project offers SCC the opportunity to improve competences and skills related to dynamic load balancing, constraint satisfaction, and Machine Learning by conducting more in-depth research in real-world situations with city and research partners. SCC has also benefited from working with non-EU research partners and developed strong research relationships with Keio university in Japan.



3.1.9.4 Individual exploitation intentions

SCC' exploitation will be in the context of the overall aims of Lancaster University, specifically furthering education, increasing UK research capabilities and augmenting North West UK industries.

Through its participation in BigClouT, SCC aims to develop new software and techniques that may be contributed to the open source community. Since SCC is a non-profit Academic Research Body, we will be releasing all related results as open source contributions under Open Source licenses: more specifically, permissive licenses, as are not restrictive licenses it can be used to create a proprietary good, allowing a commercial exploitation and ensuring high impact.

In particular we will contribute our work back to the Node-RED project and to the Java Script (JS) foundation and releasing the D-NR platform as open source on GitHub.

In addition, we intend to contribute research results to the community via traditional publication routes and will work to transfer technologies developed in BigClouT to our industrial partners through the associated Knowledge Business Centre (KBC).

3.1.10 Keio

3.1.10.1 Partner Profile

Keio has a proud history as Japan's very first private institution of higher learning, which dates back to the formation of a school for Dutch studies in 1858 in Edo (now Tokyo) by founder Yukichi Fukuzawa. Since the school's inception, the students of Keio have risen to the forefront of innovation in every imaginable academic field, emerging as social and economic leaders. Based on the knowledge and experience of outstanding faculties, today's Keio students strive to develop the leadership qualities that will enable them to make valuable contributions to tomorrow's society.

Keio University has taken a great role in research and development in Japan. In 1990s, Keio University took initiative the project called the next generation micro-kernel technology project. In the area of ubiquitous computing research, Tokuda Lab. at Keio University joined the Ubila project and the CUBIQ project funded by the Ministry of Internal Affairs and Communications and contributed to the development of core technologies in creating ubiquitous services and applications. Tokuda Lab. at Keio University has been created both hardware and software system such as smart space laboratory, smart living room, smart corridor, smart furniture and so on. Tokuda Lab. also participated IoT-related research such as NICT's Dynamic Network project and NICT's Virtual Networked Sensing project. Furthermore, for the last several years, Tokuda Lab. has been leading and actively participating several research projects on smart cities and big data, such as the previous ClouT project, "SODA: Social Open Big Data Platform for Creating Open Smart Cities" funded by NICT Japan, and "Research and Development on Real World Big Data Integration and Analysis" by MEXT Japan. Thus, Keio has excellent expertise and experiences for contributing this project.

3.1.10.2 Technical Outcomes

Keio is the leader of WP4 "Pilots and citizen involvement" along with its responsibility on Task 4.3 "Pilots integrated use cases and large-scale deployment" and Task 4.4 "Collection, analysis and validation". Keio also has the responsibilities on Task 1.2 "Analysis of existing European and Japanese assets" and Task 2.4 "Programming tools for smart city". Within these Tasks' activities, Keio has been contributing "SOXFire", which enables horizontal platform based on publish-subscribe sensor network architecture. And also, Keio has been contributing two smartphone applications, first one is "Minarepo" which enables effective reporting and sharing information, second one is "Lokemon" which enables site seeing or spot information sharing by participatory sensing.



Keio is also the leader of WP5 “Dissemination, Exploitation and Sustainability” along with its responsibility on Task 5.2 “Community building”, Task 5.3 “Standardisation activities” and Task 5.4 “Business cases and models”. Within these Tasks’ activities, Keio has been contributing not only technical view point but also deployment of sustainable smart city solution view point.

3.1.10.3 Competence and skill improved

Our Tokuda/Nakazawa Lab’s research goal is to realize ubiquitous computing and communication environment where many computers and sensors are embedded in the real objects and space for supporting human’s everyday activities. Computer was once a device that had its use restrained to computer engineers and limited personnel. However, as the hardware performance has evolved drastically in the past few decades, computers have grown smaller in size, and its use has wide spread from information appliances to various everyday objects. Our lab creates new ubiquitous computing and communication environments, where computers would not only be used in offices and research fields, but embedded in homes, vehicles, smart cities, and natural environment. We define such an information environment as “Smaret Space” and aim to support various types of human activities. Toward realizing such intelligent information environment, our lab is currently focusing on five areas.

- Smart Connected Communities
- Platform
- Interaction
- Cyber-Physical System
- Sensing and Analysis

3.1.10.4 Individual exploitation intentions

KEIO will exploit the results of the BigClouT project along with the following two vectors. One is enhancing citizens’ lives in the local community where the university campus resides. KEIO Shonan Fujisawa Campus (SFC) exists in a characteristic city, Fujisawa, in Japan. Fujisawa, since it faces to the Pacific Ocean, entails the risk of tsunami, and at the same time enjoys to have a huge number of tourists in summer. Local towns in Fujisawa city range from very old ones lasting hundreds of years, where residents are aged in average, to new ones developed in this century, where younger families live. As such, the city holds a variety of local communities, each of which faces different social problems. We plan to apply the results to solve these problems. During the project phase, a few of these problems will be picked up for field trials. Since KEIO and Fujisawa city have agreed on MOU on mutual collaboration, the two of us can cooperate to make the project result to practical realization.

3.1.11 Commissariat à l’Énergie atomique et aux Énergies alternatives (CEA)

3.1.11.1 Partner profile

CEA is a world leading research institution, world’s 2nd most innovative research institution¹, according to Reuters. CEA’s technological divisions have the main objective of transferring innovation to industry. Having the innovation in its DNA, CEA’s LETI institute has already launched 54 startups to date. As one of them, CEA-LETI serves as a bridge between basic research and industry. Its mission is to create value and innovate with industry. The core competencies of Leti bring it in the core of the IoT and High Computing world combining low power solution, nanoelectronics, sensors, connectivity technologies and security. Backed by its portfolio of 2,800 patents, CEA-LETI partners with large industrials, SMEs and startups to tailor advanced solutions that strengthen their competitive positions and their high-tech image. The Institute has launched

¹ <https://www.reuters.com/article/innovative-institutions-ranking/the-worlds-most-innovative-researchinstitutions-2017-idUSL2N1GC1NG>



54 startups to date. Its 8,500m² of latest-generation cleanroom space feature 200mm and 300mm wafer processing of micro and nano solutions for applications ranging from space to smart devices. With a staff of more than 1,800 including 250 PhDs and post-docs, CEA-LETI is based in Grenoble, France, and has offices in Silicon Valley and Tokyo.

3.1.11.2 Technical outcomes

CEA is bringing two main assets to the project, namely sensiNact IoT platform and sensiNact Studio, which will be leveraged by the BigClouT project outcomes.

sensiNact is an IoT platform, particularly dedicated to the smart city domain. It provides support for various IoT protocols and platforms in order to provide a homogenous view over heterogeneous data sources available in the city environments. BigClouT project will allow sensiNact to be extended with support for additional connectivity protocols. The project will also extend it with self-adaptiveness property. Besides, the BigClouT project will allow validating the platform within the project's pilot testbeds, thus increasing its readiness level.

sensiNact Studio is an IoT service development, deployment and management tool that can connect to IoT platforms and provide means to build services and applications by mashing up IoT device level services. BigClouT project will leverage the tool with security and dependability properties, which are essential in the IoT context. The goal will be to make IoT applications reliable and secure by design. The project's pilots will allow demonstrating the concept in relevant environments thus increase its maturity level.

3.1.11.3 Competence and skills improved

BigClouT provides the opportunity to sensiNact team to improve its competences and know-how in terms of big data analysis. The various expertise and tools available in the project enhances the team's skills in this domain. Besides, having various cities from Europe and Japan provides valuable feedback to the team, not only from the technical point of view, but also non-technical ones such as social acceptance and business modelling.

3.1.11.4 Individual exploitation intentions

sensiNact follows the open source model for its exploitation. The core of the sensiNact platform is being provided as open source, while the tools and libraries for bringing intelligence, as well as the IoT service creation tool, sensiNact Studio, will be value added extensions.

One of the main "pains" that businesses encounter today is the integration effort, time and maintenance of smart city infrastructures. These namely consist of heterogeneous and un-interoperable IoT devices, regulatory systems, social networks, web applications, etc. in addition to the difficulties of integration with the cities' existing information systems. Today, lack of open, no vendor-lock-in platforms and easy-to-use tools are one of the main barriers for the take-off of smart cities. sensiNact enables interoperability among a larger set of IoT protocols and platforms, which allows gaining considerable time, effort and consequently reducing developments costs and increase time to market of smart city applications.

CEA has plans of commercially exploiting the platform with its industrial and city partners. Its market strategy is based on creating smart city ecosystems at national and international levels and accompanying the cities for their digital transformation.

In addition, CEA will exploit the project results within the relative initiatives such as the Industrial Internet Consortium, OSGi Alliance as well as the Urban Technology Alliance, a smart city related, testbed-oriented consortium, which it is leading with its European and Japanese partners.



3.1.12 NTT R&D

3.1.12.1 Partner profile

NTT R&D is a part of Nippon Telegraph and Telephone Corporation, which is the holding company of Japan's largest ICT company group, and has been widely known its distinguished R&D experiences and expertise. NTT Network Innovation Labs belong to advanced research arms of NTT and are responsible of carrying out research and development of the state-of-the-art communications technologies.

3.1.12.2 Technical outcomes

NTT will provide self-developed oneM2M platform to BigClouT partners and integrate it with other BigClouT components to consolidated architectures. Through the process oneM2M platform will be more compliant with other oneM2M clients (for examples, sensiNact).

NTT is also preparing for wrapper of Node Red components for oneM2M. It will make the integration easier with other components of Big ClouT components and others.

NTT is also designing proper API (application programming interface) for making oneM2M applications. It is agnostic interface to oneM2M's communication methods, which has variety of 4 protocols and 3 serialization methods.

3.1.12.3 Competence and skills improved

The opportunity for testing interoperability with other oneM2M implementation will make more standard compliant technology. It could also improve oneM2M standard itself. By connecting our platform to other BigClouT components, NTT can learn real experience and know how to integrate with real and effective IoT components.

3.1.12.4 Individual exploitation intentions

As one of major intention of NTT is to promote oneM2M standard as the IoT platform. Demonstration and PoC (Proof of concepts) will be a good material to show how easy to use oneM2M and what benefits brought by oneM2M.

Through the process of integrations, errors of oneM2M specification could be found. Those errors will be corrected in the specification by the contributions of NTT. The specification is available to public, even for no oneM2M members.

NTT is also standardizing API for oneM2M in OSGi alliance, as RFC-237 'Service Layer API for oneM2M'. Not only specification but also reference implementation and compliance test will be available to public.

3.2 Community Building

3.2.1 The Urban Technology Alliance

As one of the important outcomes from several international H2020 projects (e.g., ClouT, BigClouT, FESTIVAL, Wise-IoT, as well as IoT-EPI CSA project, Unify-IoT) in particular with Japan and Korea, BigClouT project has been the pioneer to build a common strategy to establish a global initiative in order to sustain the outcomes of the collaborations. The initiative is called Urban Technology Alliance.

Urban Technology Alliance (UTA) is a global organisation providing city scale testbeds from all around the world, to deploy, test and validate latest innovation in the smart city domain. The mission of the UTA is to provide trustful, independent and neutral guidance to cities for their



sustainable digital transformation enabling them to face today's economic, social and environmental challenges. UTA is setting up a vibrant community including a complete smart city ecosystem composed of cities, industry, research institutions/universities, non-profit organizations, and citizens. UTA members will network, build business partnerships, deploy and test concrete solutions in real-life environments and share best practices, lessons learned and success stories among members worldwide.

The core partners of the initiative are coming from several international H2020 projects, in addition to BigClouT, other projects such as ClouT (<http://clout-project.eu>), FESTIVAL (www.festival-project.eu) and Wise-IoT (<http://wise-iot.eu>). About 30 industrial and academic partners and 15 cities (from EU, Japan, Korea, China and USA) have already confirmed their interest to be part of the initiative.

The initiative is complementary to the existing European and worldwide initiatives. The initiative will have liaisons with various related activities worldwide such as IoT Acceleration Consortium (IoTA) in Japan; Global City Teams Challenge (GCTC) in USA; Urban Opus in Canada; AIOTI Alliance and FIWARE Foundation, Eurocities, Open and Agile Smart Cities (OASC) in Europe; Smart City Consortium of Hong Kong; Korea's national smart city initiatives; Brazil IoT Forum, as well as more global initiatives such as Industrial Internet Consortium (IIC), Eclipse Foundation, etc.

Additional members and liaisons will be created in the coming months with India, China and Australia with the help of the contact points of the International Cooperation Task Force of the Unify-IoT project, led by CEA.

During the 2nd year of the project, the core partners have worked on defining the vision, strategy and the structure of the alliance and fix the launch date as November 7th, with a special event that will be organized at the European Commission's premises in Tokyo. The alliance adopted the following logo illustrated at the Figure 3-1.



FIGURE 3-1: URBAN TECHNOLOGY ALLIANCE LOGO

More details about the alliance structure, activities, value proposition and membership fee structure are detailed in the Deliverable 5.4.

3.2.2 "Regional IoT and Information Force Consortium" activities

The Regional IoT and Information Force Consortium is one of the community building activities promoted by Keio University with Fujisawa-city and other members. In the figure below further information on the scope and objectives of the Consortium is provided.

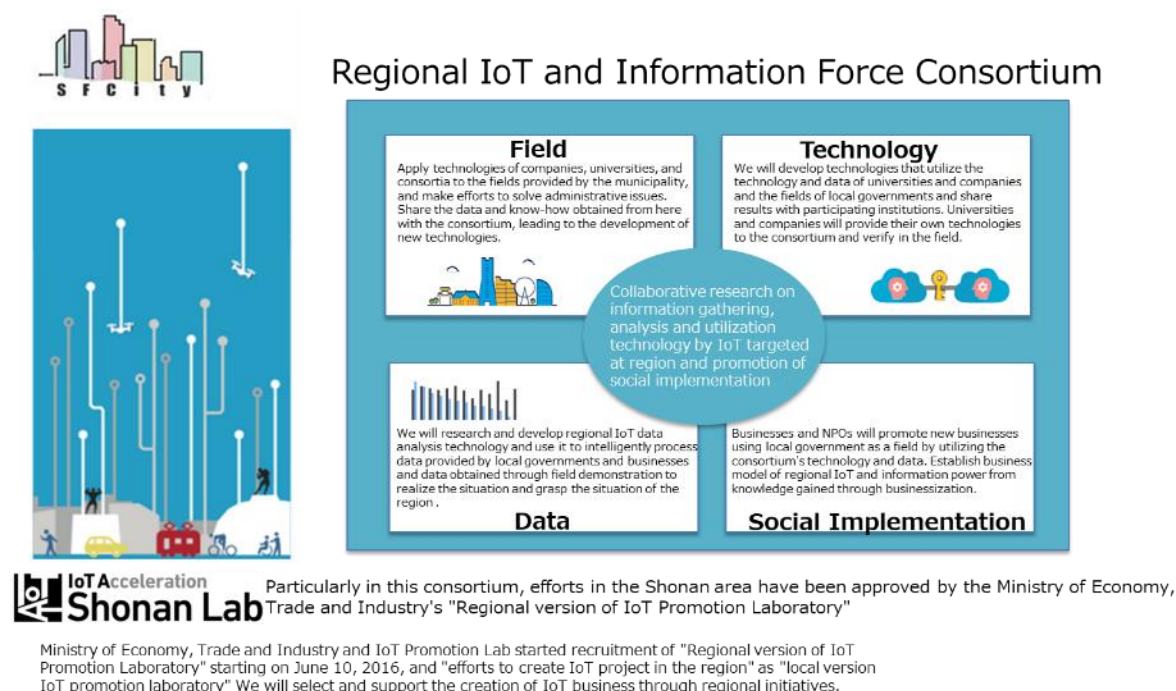


FIGURE 3-2: "REGIONAL IOT AND INFORMATION FORCE CONSORTIUM"

The Regional IoT and Information Force Consortium has 4 working groups: Utilization of public vehicles, participatory sensing, smart mobility and local government live data. In the figure below a snapshot of the objectives of the 4 working groups.

4 Working Groups activities of "Regional IoT and Information Force Consortium"



FIGURE 3-3: 4 WORKING GROUPS ACTIVITIES

Below is the current list of the members of the Consortium:

Current Member List of “Regional IoT and Information Force Consortium”

Secretary Member

Fujisawa City
Fujisawa Recycle Cooperative
Internet ITS Consortium (IIC)

Supporting Member

Chigasaki City
Samukawa-cho
Sagamihara City
Yokosuka City
Panasonic System Solutions Japan Co., Ltd.
Green Blue Corporation
Plat'Home Co., Ltd.
Tadasunomori Inc.
Fujisawashi Kougyokousha Co.,Ltd.
East Nippon Telegraph and Telephone Corporation
KDDI Research, Inc.
Community activation Labo Sagamihara
Code of MIKAWA
ZENRIN DataCom Co., Ltd.
Sekimoto Lab. The University of Tokyo Institute of Industrial Science
Matsumoto Lab. Toyama Prefectural University
Munaka Lab. Tokai University
Kitagawa Lab. Tsukuba University

On the 28th of April 2017 the first Symposium of the Regional IoT and Information Force Consortium took place at Keio Hiyoshi campus.



1st Symposium of “Regional IoT and Information Force Consortium” (28th April, 2017 at KEIO Hiyoshi campus)



Photos and video of 1st Symposium (Sorry in Japanese)

<http://www.sfcity.jp/開催報告第1回地域IoTと情報カシンポジウム/>
<https://www.youtube.com/watch?v=BN5gSMvEugA>

FIGURE 3-4: 1ST SYMPOSIUM OF “REGIONAL IOT AND INFORMATION FORCE CONSORTIUM”

We could have very good discussion through 7 times Study Group events and 7times Working Group events with every participants.

Holding a study group inviting lecturers with unique topics every time



FIGURE 3-5: STUDY GROUPE ACTIVITIES”



Special project session "The power of information that comes out when I enclose a city with IoT and its experiment ~ Making a smart city with IT and AI ~"



FIGURE 3-6: SPECIAL PROJECT SESSION AT OPEN RESEARCH FORUM 2017"

3.3 Business Model

The business model investigation activities in BigClouT have focused on the analysis of the main results of the BigClouT project namely the Platform, the Applications and the Exploitable Items. Through this activity the partners have looked deeper into the beneficiaries, their needs, the benefits offered by BigClouT results and the competitive advantage these results have on other existing solutions. The analysis of returns, cost structure and sustainability plans have also started.

The results of the above activities can be found in D5.2 for the Exploitable Items and in D5.4 for the Platform and Applications.

The business model related activities are still ongoing and updates will be provided in D5.5.

