



"Linked Open Apps Ecosystem to open up innovation in smart cities"

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Summary

The delivery of the iCity Urban Platform is a crucial milestone for the iCity Project and marks the point where several parallel pilots will be run by each of the four involved major cities. The iCity Platform is deployed with the purpose that each city will develop pilots for various applications which focus on improving efficiencies and communities in transportation and mobility, social care and ageing, environment, citizen's participation enhancing the inclusion of persons with disabilities and other relevant fields.

This document is to report the status of the pilot's deployment as well as setting out the iCity milestones, and measurement indicators, with the aim of monitoring and controlling progress at different stages in the project life.

DOCUMENT HISTORY

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ABBREVIATIONS AND ACRONYMS

Acronym	Description
App	Application
PU	Public
DoW	Document of Work
SMEs	Small and Medium Enterprises
API	Application Programming Interface

1 Introduction¹

The iCity Project will develop and deploy an Urban Platform and operational processes to enable user-driven open innovation ecosystems in which to co-create, deploy, operate and exploit Internet-enabled public services or services of public interest in smart cities.

This project is organized as a joint effort carried out by a cross-border alliance of 'Smart Cities' (Barcelona, London, Genoa and Bologna) with the involvement of third parties (companies, SMEs and third sector) contributing to create a rewarding environment within the iCity Project.

With the delivery of the iCity Urban Platform, a milestone is reached where the iCity Project can commence with a series of pilots in parallel to run by each of the four involved major cities. The city project pilots will be based on the iCity platform currently under construction and will integrate existing open shared technology platform. The shared Urban iCity Platform will provide an integrated vision of a city and its infrastructures and all integrated components, building the basis of digital information and communication to foster a user-driven open innovation ecosystem.

The integration of municipal Open infrastructures in the iCity Platform originates the possibility to interact with these infrastructures allowing the development of applications and services by these third parties. The general concept of the pilot is to develop applications and services by third parties using open municipal infrastructures integrated in the iCity Platform.

The iCity Platform is deployed with the purpose that each city will develop pilots in different sectors. These set of key thematic areas are well aligned with the Digital Agenda for Europe flagship initiative: improving transportation efficiency and mobility, social care and ageing, environment, citizen's participation, enhancing the inclusion of persons with disabilities and other relevant fields.

Despite the fact the DoW defines different areas of interest in each city in order to develop applications focused on these sectors, according to the municipal infrastructures integrated by each city and the interests of the developers and third parties; it does not make sense to emphasize particular areas in each city. The idea is to develop iCity applications in all areas according to the necessities, interests and accessible infrastructures.

The approach will be to identify ways of exploiting synergies and best practices by the specification, integration and piloting of a common Urban Platform and service delivery across all four of the cities.

¹ Part of this section has been extracted from the DoW

2 Purpose of this document

The iCity Project is split into a number of phases, this helps the management and deployment of resources and capabilities so the iCity platform is gradually developed and introduced to the local software development community and user public.

Evolution of the iCity Project phases is outlined as follows:

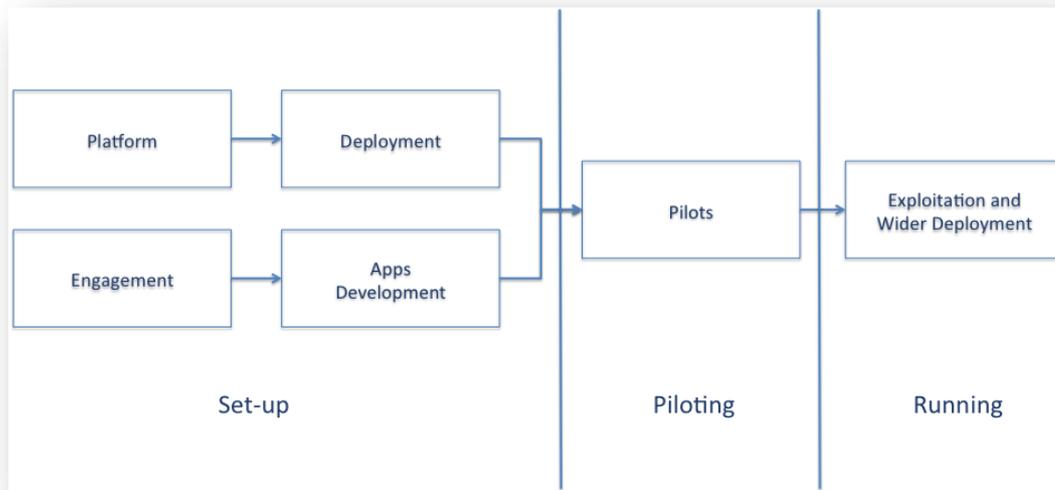


Figure 1: Phases of the iCity Project²

Please, note that Set-up phase is a critical dependency that must be completed ahead of the second phase Piloting. The platform development and deployment as well as the software developer engagement and consequently Apps development are requirements to carry out a successful Piloting phase. The purpose of Piloting is to deploy the first pilots under the iCity Project as well as to collect information about their performance.

Advances carried out during this phase will be explained in this document with the purpose to analyze the current situation at month 24 of the iCity Project in terms of pilot's development.

Please note the Piloting phase implies a process that is in progress and gradually maturing. There are expected the delivery of two additional versions of this document in the future, with the same structure which will detail the work tasks until the concluding phase.

Pilot's Development Report-rev1 is structured in two parts. The first part will explain the status of the pilot deployment; it will include the technical evolution of the iCity Platform as well as an outline of the open municipal infrastructures integrated to the iCity platform by each city up to that point. The second part is focused on analyzing and evaluating the iCity indicators. These indicators, that are related with the phases of the iCity Project and associated objectives, will be tracked and measured in order to follow the progress of overall project and the individual city pilot projects, and their achievement against the targets and goals - a set of

² Figure extracted from the DoW

specific and quantified indicators aimed at monitoring progress at different stages in the project life.

3 Pilot's Development Report at Month 24

Due to delays with the iCity Platform development and deployment, engagement has also experienced delays. Now the platform has been accepted and validated by all partners as a useful tool to start with the dynamization activities.

Now, we are deeply involved in organizing engagement activities with the purpose to get applications of public interest developed by interested third parties.

At month 24 we cannot provide with all expected results and reports because no iCity application has been created yet. Despite that, this document is elaborated as agreed in the DoW.

3.1 iCity Platform

Status	Up and Running. Link to access the API: http://icity-devp.icityproject.com/
Functionalities	This platform version allows developers create APPs using the API iCity (REST)
Open Infrastructures integrated	<ul style="list-style-type: none"> • GLA: Air Quality Sensor • BCN: Barcelona Sensor Platform (BSP) • BCN: Smart Citizen Platform • CDG: Weather Station • Integrated infrastructures, but not yet accessible: <ul style="list-style-type: none"> ○ <i>GLA: Transport For London (TFL) - Journey Planner</i> ○ <i>BCN: IRIS(Barcelona citizen complaints system)</i> ○ <i>CDG: Citizen's Desk</i> ○ <i>COBO: TPER-QueryHelloBus</i> ○ <i>COBO: TPER-QueryHellobus4ivr</i> ○ <i>COBO: TPER-QueryResale</i>
API iCity	Request service and registration service. Working on a new API based on standard OPEN 311 for citizen complaints.
API Open Data	Search, catalogue and publish
SDK	Expands the API RESTiCity providing developers with more documentation.
Additional information	Front-end with users will be constituted by: <ul style="list-style-type: none"> • Public portal (providing public information related to iCity Project) The link is www.icityproject.eu

	<ul style="list-style-type: none"> • Allowing access the API REST to developers under registration. <p>The link is http://icity-devp.icityproject.com/</p>
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3.2 Pilot Project Deployment

3.2.1 Open municipal infrastructures

ALREADY OPEN INFRASTRUCTURES

Infrastructure	Weather Station
City	Genoa
Description	<p>Genoa has a network of weather stations that provide information about temperature, humidity and wind speed from many providers.</p> <p>These infrastructures allow developing applications that show real time information about local weather.</p> <p>These data are used by citizens but it's also among the information used by our local Civil protection.</p>
State	Integrated to the iCity Platform
API	API available
Additional information	<p>This infrastructure must be used to this way:</p> <p>Only iCity platform can access directly.</p>
Availability	Available.
Work plan	Integration date: M19

Infrastructure	BSP (Barcelona Sensors Platform)
City	Barcelona
Description	<p>Barcelona City Council offers a platform to access to sensors data which are distributed around the city.</p> <ul style="list-style-type: none"> ▪ This BSP includes these kind of sensors: ▪ Environmental sensors (temperature, NO2, CO2, noise). ▪ Sustainability (level of capacity of the container waste) ▪ Traffic management (parking sensors). Walkers

	<p>flows (number of pedestrian).</p> <ul style="list-style-type: none"> ▪ Irrigation control (ground humidity, wind, rain, temperature) ▪ Building energy management sensors (electricity and gas)
State	Integrated to the iCity Platform
API	API available
Additional information	<p>Service limitation: Number of actions per unit time is restricted to 10 queries per second.</p> <p>Cost:Free (analysis of the possibility charge a fee in the future)</p>
Availability	Available.
Work plan	Integration date: M20

Infrastructure	Smart Citizen Platform
City	Barcelona
Description	<p>Smart Citizen is a platform to generate participatory processes of people in the cities. Connecting data, people and knowledge, the objective of the platform is to serve as a node for building productive and open indicators, and distributed tools, and thereafter the collective construction of the city for its own inhabitants.</p> <p>The Smart Citizen project is based on geolocation, Internet and free hardware and software for data collection and sharing, and (in a second phase) the production of objects; it connects people with their environment and their city to create more effective and optimized relationships between resources, technology, communities, services and events in the urban environment. Currently it is being deployed worldwide.</p> <p>http://www.smartcitizen.me/</p>
State	Integrated to the iCity Platform
API	API available
Additional information	test.smartcitizen.me/pages/terms
Availability	Available.
Work plan	Integration date: M22

Infrastructure	Air Quality Sensor
City	London
Description	<p>London has a network of weather stations that provide information about temperature, humidity and wind speed from many providers.</p> <p>This infrastructure allows developing applications that show real time information about local weather.</p> <p>These data are used by citizens but it's also among the information used by local Civil protection.</p>
State	Integrated to the iCity Platform
API	API available
Additional information	Pending to include this information
Availability	Available.
Work plan	Integration date: M14

OPEN INFRASTRUCTURES (but not yet accessible from iCity API)

Infrastructure	IRIS (Complaints and Suggestions System)
City	Barcelona
Description	<p>Barcelona City Council offers different attention channels aimed to citizens (telematics, telephonic and face-to-face channel) with the purpose to allow citizens communicating incidences, complaints and suggestions about municipal services or city functioning. Furthermore, it is possible to consult the petition status by means of the three possible channels as well as claim it.</p> <p>To ensure the fastest resolution of each request, it is essential to classify correctly the requests.</p>
State	Integrated to the iCity Platform.
API	Work in progress. A new API is being developed based on model 311.
Additional information	<p>Number of actions per unit time: Not applicable</p> <p>However, it is important emphasize that the system detects SPAM. Hence, the access to an application which permits SPAM from its service will be blocked.</p> <p>Themes: All Incidences themes (extension of IRIS to</p>

	mobile devices where just there are some themes). It is essential to collect 3 information required levels area-element-detail)
Availability	Pending development of new OPEN 311 API.
Work plan	Expected integration date: M26

Infrastructure	Citizen's Desk
City	Genoa
Description	<p>This infrastructure is mainly based on the information stored on a database and managed through web and mobile applications. Through this system citizens may request information about department or work processes, receive documentation or forms by mail or fax, check the opening hours of the offices. There is also information about tourist and cultural points of interest, or security and public health structures (police stations, hospitals, embassies, etc.).</p> <p>The system is managed and used by various offices spread on the municipal territory but it will be expanded and will also supply information of other surrounding areas in an integrated way. The structure is already designed for distributed gathering of information from different sources.</p>
State	Integrated to the iCity Platform
API	API work in progress.
Additional information	This infrastructure must be used to this way: Only iCity platform can access directly.
Availability	Pending improvements of iCity API.
Work plan	Expected integration date: M26

Infrastructure	TPER—QueryHelloBus
City	Bologna
Description	Public transportation arrival time information management service. Expected arrival time of a bus of the specified line to a bus stop
State	Integrated to the iCity Platform
API	API work in progress.
Additional information	This infrastructure has not any restrictions.
Availability	Pending improvements of iCity API.

Work plan	Expected integration date: M26
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Infrastructure	TPER— QueryHelloBus4ivr
City	Bologna
Description	Similar to QueryHello. Expected arrival time of a bus of the specified line to a bus stop in IVR-compliant format.
State	Integrated to the iCity Platform
API	API work in progress.
Additional information	This infrastructure has not any restrictions.
Availability	Pending improvements of iCity API.
Work plan	Expected integration date: M26

Infrastructure	TPER— QueryResale
City	Bologna
Description	The service provides the list of resellers of Bus tickets allocated in the nerby of a specific bus stop.
State	Integrated to the iCity Platform
API	API work in progress.
Additional information	This infrastructure has not any restrictions.
Availability	Pending improvements of iCity API.
Work plan	Expected integration date: M26

Infrastructure	Transport For London (TfL) - Journey Planner
City	London
Description	Journey Planner provides customers with a desktop and mobile browser based journey planning solution. This facility will enable application developers to freely access the same journey solutions that are available to TfL customers on the TfL website and mobile site. Further details of the Journey Planner API are available here: http://www.tfl.gov.uk/businessandpartners/syndication/default.aspx
State	Integrated to the iCity Platform.

API	Work in progress.
Additional information	<p>Access is by pre-registration – including agreement to terms and conditions. Developers will be approved by TfL and for purposes of the iCity Pilot have to be agreed with GLA iCity team first.</p> <p>http://www.tfl.gov.uk/businessandpartners/syndication/16492.aspx</p> <p>In order to provide the public with the most accurate information possible, feeds must be obtained and displayed in a timely fashion. In each TfL Online Standard XML feed, we provide the information necessary to do this appropriately according to the feed content, as follows (all dates and times are UTC).</p> <ul style="list-style-type: none"> ▪ Feeds must be grabbed and displayed with the same frequency as that in the <RefreshRate> tag. ▪ Feeds should be grabbed and displayed in synchronicity with the <Schedule> tag. For example, if the publishing schedule is "Every quarter", please grab the feed a short time after that. <p>Feeds must be displayed within a certain period after being grabbed, represented by the <Max_Latency> tag.</p>
Availability	Pending improvements of iCity API.
Work plan	Expected integration date: M27

INFRASTRUCTURES TO BE OPENED WITHIN THE NEXT 6 MONTHS

- Genoa
 - Level of pollution
- Bologna
 - CISUM-Events (transportation events, such as accidents and civil works)
- Barcelona
 - ByTaxi Platform (booking the nearest taxi to user)
 - MSE Service (information about the WiFi network to approach density of people in an area and flows of people around the city)
- London

- AlertMe (live and historical whole-house electricity use)
- Cycle Alert (safety security & planning)
- Leisure centres and swimming pools

3.2.2 Report of requests for approval of applications and services

As already stated at the introduction of this chapter, iCity Platform has experienced an important delay on deployment. Originally planned to be deployed and available by month 15, real deployment date has been shifted several months. A first version of the platform was up and running on month 18, but it was not stable and functional until the end of month 22.

As a result, dissemination and communication activities aimed at the developer communities and originally planned for year 2013 did not make sense until the last 2 months of the year. During the first 10 months, iCity platform could only be explained as an idea. And obviously, iCity platform explained as an idea is not as powerful as explained and shown as a tangible reality, especially when facing a community with a really technical profile.

Indeed, despite a high amount of activity on dissemination and communication in 2013, we could say real mobilization of the community could not start until November. The first presentation event of iCity open to general public, where we exposed the platform and showed the way to build an APP from scratch using iCity API, took place at mid-December³.

While our original strategy was focused on showing our platform to the developer communities, the difficulties provided by the mentioned delay on the platform availability made us think on other strategies.

One of them was looking for synergies with other European Projects. And that led us to Commons for Europe⁴ and the possibility of using the Fellowship program in order to ask the community to build some APPs to work with iCity, some of them intended for internal use of Public Administration. And soon after that, we understood most of those internal APPs should be used by the general public as well, of course with some profile, permissions and security issues – which iCity natively resolves.

We also faced another issue related to the engagement of developers to work with iCity. Although the iCity platform exists and it is fully functional, feedback from the developer's community was clear: there are not enough infrastructures integrated on iCity for it to be attractive to developers to spend their efforts on developing apps through this platform. The community expects more infrastructures to be integrated, and the more geographical area covered the better.

A clear example on that issue is Barcelona Sensors Platform. Although the platform is fully integrated and working, the current number of sensors is too low and the actual area covered by them is reduced to some spots in the city. Barcelona Sensors Platform will continue to grow, both in number of sensors and in city area coverage. But for now, an app developed using the infrastructure is not seen as a source for income, but only as an academic exercise.

³The event was a great success. More than 50 developers attended and showed up their interest in the project and their ideas to improve the platform.

⁴<http://commonsforeurope.net/>

As a result, we have worked on communication activities focused on the education sector. For now, we have had meetings with three major universities in Barcelona (Universitat Politècnica de Catalunya, Universitat Ramon Llull and Universitat Pompeu Fabra), and we are planning to do so in the rest of member cities. The objective is to offer iCity to universities, as a platform for developing apps from an academic point of view. Universities have shown their interest on using iCity in their academic programs at final year projects or at R+D departments.

Also, aimed at increasing the number of infrastructures available, we made an approach to CitySDK⁵, another European Project with clear synergies with iCity Project. CitySDK is aimed at creating a toolkit for the development of digital services within cities. We believe we can use outcomes of CitySDK as inputs to iCity, and also iCity can be an interesting platform for member cities of CitySDK project to integrate their own infrastructures. That should significantly increase the number of cities involved in iCity platform.

So, although we do not really have any application released or requested for approval, we think we are on the good way because almost 200 people have registered into developers' portal and some APPs will start to be developed in short, as dissemination and dynamization activities are to continue with more intensity during 2014.

3.2.3 Report of applications and services released

Work in progress. It will be included in the next deliverable, D5.5 Pilot's Development Report-rev2.

3.3 iCity Indicators

This document has been elaborated during month 24. Currently it has not been possible to collect data about the developed pilots because there are not iCity applications yet.

Ind.	Description	Method of measurement	Results (M24)	Expected Progress		
				M12	M24	M36
1	Adoption of Open Infrastructures & Data charter	Enumeration of Platform integration elements	10 ⁶	5	15	30
5	Applications released	Enumeration of applications	0	n.a.	75	300
6	Requests for approval of apps	Enumeration of organizations (by reports)	0	n.a.	85	330

⁵<http://www.citysdk.eu/>

⁶Note that the number of infrastructures integrated at M24 is 10 but currently only 4 are available through the API in order to develop APPs.

- GLA: Air Quality Sensor
- BCN: BSP
- BCN: Smart Citizen Platform
- CDG: Weather Station

8	Downloads from iCity Apps store	Enumeration of Downloads by using logs	0	n.a	7.500	40.000
9	Applications utilized by users	Enumeration of evidence of use by using platform logs	0	n.a	50	200
10	Users involved in testing and use of applications	Number of users (from logs of the platform)	0	n.a.	15.000	43.000

3.3.1 Evolution of applications in each open municipal infrastructure

Report about open municipal infrastructures integrated to iCity Platform in terms of quantifying the success would be included in the next deliverable, D5.5 Pilot's Development Report-rev2.