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1 Executive Summary

This report provides a planning template for setting up a pilot living lab ecosystem for the European Platform for Intelligent Cities (EPIC) project. The pilot operations plan focuses on the three cities of Brussels (Belgium), Issy-les-Moulineaux (France) and Manchester (UK) for the delivery and implementation of three ‘smart’ city services: Relocation Service; Urban Planning Service and Smart Environment Service.

The report will provide a basis for the whole project implementation to be used as a design for the operation of the pilots and their subsequent integration into the EPIC cloud technology platform. Testing outcomes and feedback from pilot stakeholders will enable refinements to be made to the web services and the platform creating an iterative process which can be utilised for evaluation and validation processes carried out in WP8 tasks. Following this project stage, a fourth pilot partner, will use the Roadmap Strategy and Pilot Operations Plan to integrate the new technologies to demonstrate ‘smarter’ ways of working. In this way, adapting the pilot applications to meet public administration, local citizen and SME’s needs, it will provide a ‘proof of concept’ for the project.

The concept of services on a cloud platform connects the experience developed by a wide range of existing user-driven, open innovation initiatives in Europe. This is particularly for those initiatives developed through Living Labs, and the application of this experience as the challenge of transforming public services by empowering ‘smart citizens’ provides added value to cities and citizens through the rapid uptake of new services. In the long term the aim is to create a sustainable offering that will provide a wide range of opportunities for new, higher quality sustainable services for citizens and businesses following the conclusion of the project.
2 Introduction

A key goal of the EPIC project is to test users accessing web services via a cloud platform. The objective of WP7 is to deploy three pilots in three cities in real life environments, followed by subsequent deployment of one of the pilots in the City of Tirgu Mures, Romania.

This document is a description of the Living Labs methodology for use in a common approach for the EPIC pilot deployment. EPIC is focused on SME’s developing products and services with public administrations and citizens. Other Living Lab projects may have a different focus, for example service development and behaviour modification\(^1\). Whilst detailing a coherent project methodology, it is important to acknowledge that the unique aspects of each pilot must be addressed in the practical application in a Living Lab. It is also important to acknowledge that there can be no single methodology and that there is no “off the shelf solution” for all Living Labs. The process must be interactive and managed in such a way that those users i.e. Living Lab members are actively engaged whilst maintaining the project objectives.

Two pilots are web based services and the third, Smart Environment utilises Internet of Things (IOT) in the form of sensors to monitoring home energy (electricity) use. There are methodological implications for this pilot in that this involves participating users in the installation of equipment in their homes. Account therefore needs to be taken of the use resources and implications for the project.

The outcome from this document is that individual Living Lab pilots will each develop their own detailed deployment plan based on the common methodology as presented here. Section 3 offers a general reflection on the benefits of the Living Lab approach for ICT innovation and the EPIC project, in particular. Sections 4 and 5 present the pilot scenarios and common framework that underpins the operationalization of the three Living Labs. Sections 6 and 7 elaborate on the pilot-specific means of user recruitment and management, and pilot implementation process. Section 8 briefly addresses the evaluation procedure. This is followed by a conclusion and several annexes that include: work plan and schedule, partner roles and responsibilities that underpin the common deployment strategy, a detailed communication plan, data table structure for user data management, risk management plan and, lessons learned.

\(^1\) Digital Environment Home Energy Management System - DEHEMS – www.dehems.eu
3 Living Labs & ICT System Development: Approach & Methodology

Historically, innovation has been characterised as a linear process, driven and controlled by the industrial developers of products for the marketplace. In the information society, two trends can be detected that led to different conceptions of innovation.

First, innovation is increasingly seen today as a catalyst for growth and competitiveness and has been enthusiastically promoted at regional, national and international level and included in new policy formulation. The linear concept has evolved more towards a network model involving partners supporting innovation, often focused on cycles of innovation activity. The greatest change in how we should consider innovation is coming about in open innovation. It postulates that companies should be open to outside ideas since innovation can only thrive when a company utilises a network of partnerships beyond its traditional internal resources (Chesbourgh, 2008). The second trend has been the growing importance of the role of the user in the design process for product and service innovation. The resulting quality and appropriateness of a product or service will suffer if users in one way or another are not involved in the processes that make up the design stage.

While many new approaches emerged that involves users in one way or another in a stage of the development process (user centric design, crowd-sourcing, wisdom of crowds, lead user), until recently the level of partnerships has focused on science parks, business incubators and other types of activities that support fledging new companies. In recent years there has been a shift towards recognising the importance of users. This has led to the emergence of a group of European organisations which characterise themselves as Living Labs. Its name reflects their common philosophy and aims to set up a research laboratory, that supports research and development and innovation activities by testing and validating them with users in their real life context and environment. Living Labs are an innovation area where users co-create with developers and researchers and are the first attempt to structure and provide governance to user involvement in a way that can be addressed by companies, research institutions, public organisations and policy makers. On November 20th 2006, under the Finnish EU presidency, the European Network of Living Labs (ENoLL), a project partner of EPIC, was set up. Since then, 6 successive waves of new living labs, each of them under the auspices of the EU, have been taken place and ENoLL now has about 250 members in the European Union.

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ALTEC Consulting produced in March 2009 a report for the DG INFSO entitled ‘Study on the potential of the Living Lab approach including its relation to experimental faculties for future Internet related technologies’. It provides a working definition of a Living Lab:

Under a purely institutional perspective, a Living Lab can be defined as “a system based on a business-citizens-government partnership which enables users to take active part in the research, development and innovation process. Products and services are developed in a real-life environment in a human centric and co-creative way, based on continuous feedback mechanisms between the developers and the users”. As Open Innovation platforms, European Living Labs aim “at creating a user environment where users are confronted with ideation and prototypes or demonstrators of technology from the early stages of the research, development and innovation process, not only at the end”, as it is the case “in more classical field trials or product testing approaches”.

ALTEC Consulting concluded that the essence of European Living Labs holds potential disruptive and long lasting transformational effects on the European industry, markets, regional economics and societal landscapes. Living Labs have proven to be feasible regarding the operational interaction among key pillars of society (1. citizens and community, 2. industries/business, 3. public administrations, 4. Universities and research institutes) addressed to human centred, open innovation, particularly in the early stages of ideation and concept design along the product/service development process. ALTEC assesses moreover Living Labs as truly European model of innovation that can supplement the known limitations in market size by leveraging on local communities and diversity (of actors, topics, requirements) for the provision of co-creative, user centred innovation to industrial players and especially to SMEs. Thirdly, ALTEC claims that Living Labs have already generated a tangible impact in some industrial sectors/businesses, especially ICT and communication) and also have the potential to provide cross domain services in areas such as energy, environment, transportation, rural, health and social care, leisure and culture etc...mostly where the involvement of citizens is essential for a more complete definition of product/service features and feasibility. Fourthly, ALTEC identified the establishment and working of ENoLL as a necessary and beneficiary tool for assuring interoperability and thus creating on the one hand opportunities for sharing methodologies and experiences and on the other hand harmonise and diffuse best practices. The current APOLLON project, a Commission-funded initiative to benchmark and share best practice among Living Labs, will help to mainstream this new and important means of innovating.

Despite these positive points, ALTEC notes that very few European Living Labs are currently involved in what could be called a permanent iterative process involving the development of a variety of systems, products and services which may or may not be connected. Whilst there are exceptions - for example in Lulea in Sweden and Oulu in Finland.


4 ALTEC, Study on the potential of the Living Lab approach, including its relation to experimental facilities for future internet related technologies. Final Report, 9 March 2009, p.6

5 ALTEC, Study on the potential of the Living Lab approach, including, pp.5-6
- at the moment most Living Labs are involved in the iterative process surrounding the development of a specific service or set of complementary services. Not surprisingly, ALTEC endorses the current EU policy objectives of bringing Living Labs together to share information, methodologies and examples of best practice.

Recent research literature confirms ALTEC’s identification of the positive and negative points of current Living Lab activities in Europe.⁶

A DG INFSO publication on Living Lab methodologies (July 2010⁷) complements the ALTEC document. Whilst the emphasis on the ALTEC Report is on Living Labs as institutions - possibly as a network - this second publication is more focused on highlighting case studies and the methodologies that they adopted. In that sense it adopts a more bottom up approach.

The second Living Labs Summer School, 2011⁸ documents the process of setting up a living lab and its development as an ecosystem, placing the user at the heart and illustrating the process as iterative.

![Image of a diagram illustrating the process of setting up a living lab as an ecosystem](image.png)

**Figure 1 How to Set Up a Living Lab (The Ecosystem)**

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⁶ See literature mentioned in footnote 2
⁷ ‘Living Lab methodologies - An update on Living Labs for user-driven open innovation in the ICT domain’
⁸ Enoll Summer School documentation
The project presents an opportunity to examine the requirements of systems development in a Living Labs context. In an economic crisis with growing citizen expectations for more efficient infrastructures and services that cost less, EPIC will contribute to the creation and development of innovative ICT-based solutions with the potential some of these issues for European cities. The EPIC Platform will therefore combine the industrial strength of IBM’s ‘Smart City’ vision and cloud computing infrastructure with the knowledge and expertise of leading European Living Labs and municipalities of IBBT iLab.O, Issy-Media and Manchester. The aim is to consider the shortcomings of current Living Lab fragmented output by giving cities the opportunity to learn from one another and exchange practical working models in a real-life context. In this sense, EPIC will represent a logical next step in EU policy, designed by SMEs and larger industry players and build on the benchmarking work of other projects e.g. Apollon.⁹

Using the Living Lab concept and its user centred methodologies and setting up innovative ecosystems for each of their services, the pilots will aim to realise the projects three key aims:

1. **Partner Living Labs** will engage citizens and SMEs in the innovation process to help drive creation of smart, user friendly services that citizens, businesses and city visitors want and are potentially willing to pay for

2. **Partner cities** will work to plug existing and new co-designed web-based services into the open EPIC platform so that other cities, such as relative newcomers like Tîrgu Mures in Romania, can easily connect to the platform and use them

3. **Partner consultants and subject matter experts** will use findings from pilot trials to help create a business-oriented, public-private partnership roadmap that incorporates a variety of differing business models from open source, to pay per use and licensing¹⁰

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⁹ The EPIC DoW (Annex I) – EC-GA p4 Description of Work PART B

¹⁰ The EPIC DoW (Annex I) – EC-GA p4 Description of Work PART B
4 Pilot Scenarios

A short overview of each of the three pilot scenarios, as detailed in D5.1, are summarised and presented below. A fourth scenario will aim to demonstrate the interoperability of the three pilot applications in an integrated scenario referred to as ‘Keith’s House’. In addition, Tirgu Mures (Romania) will be involved at each stage of the pilot operations plan and implementation phases. Based on the completion of these phases, Tirgu Mures will adopt one of the pilot applications or the integrated application, ‘Keith’s House’, which will provide a proof of concept in a non-advanced city (in the context of a smart city) for the EPIC project.

4.1 Relocation Service

The IBBT iLab.O Living Lab in Brussels has created a prototype hyper-local mobile web to facilitate an easier housing search in the wider Brussels area. The main goal of this application came from the needs of citizens and local housing businesses to make it practical and easy to find real estate (for sale or to let), based on the personal context of the user. Parameters that the application takes into account are geo-location; personal profile information; previous interest shown and user demographics. An additional link with physical objects (in this case the real estate) was made through the use of QR-codes.

To date the prototype’s target users have been inhabitants of Brussels and the vicinity. The content consumed and offered by the application is restricted to real estate information. With the help of partners Immoweb (use of the web services with geo-located real estate information), CIBG (combining Brussels government data-sources into relevant services) and Fraunhofer (methodology to support multinational communication and cooperation, primarily for military and security applications and being adapted for the e-government/smart city sector). The service will broaden its scope to focus on a more extensive mobile family relocation service that offers a multi-faceted perspective and multiple services for people from different European Union countries who come to live in Brussels whether temporary or permanently. IBBT iLab.O has also made its relocation application available for the mobile web, and target as many smartphone device types as possible.

By offering a holistic approach to relocating to a foreign city, the relocation service hopes to solve the following problems:

- Smart housing: finding a temporary/more permanent place to stay should become much less cumbersome;
- Smart e-government: streamlining the often tiresome practical government related duties for a person moving abroad;
- Overcoming the language barrier, and making implicit knowledge visible;
- Offering an augmented layer of government and non-government data concerning the city, including general information newcomers in a city need to know or strongly benefit from knowing (smart city guide)
4.2 Urban Planning

The Urban Planning service aims to enable efficient networking between businesses and citizens and to provide an interconnection between the SMEs of Issy-les-Moulineaux.

One of the main features of the service is that it allows managing, sharing and communicating information on urban planning and development projects in the city. Extra features developed within EPIC include the provision of information on the local SMEs (who is who, who does what, what are the current offerings, both in the direction of other businesses and the citizens), which will have an increase in different aspects of the local activities. Citizens will have faster access to the local economic aspects of the city (especially those seeking employment). Local businesses will have an insight into the local economic fabric; competition and potential partners and finally, the local administration will be able to offer an interactive multi-service portal to citizens providing a detailed view of the local economy with up-to-date news in the sector.

4.3 Smart Environment

Manchester City Council (MCC) along with its technology partner Hildebrand (HIL) will deploy an energy monitoring solution to provide information to assist citizens of Manchester reducing their domestic electricity consumption.

Hildebrand will utilise its product, Energy Hive, opening up data sources and functionality to EPIC through application programming interfaces (APIs). Energy Hive utilises data collected from its Internet gateway and sensor management system, demonstrating a real Internet of Things (IOT) system. The sensors deployed within Manchester will measure the energy dynamics of residential properties, focusing on electricity consumption. Within EPIC, this will represent a specific scenario for a more generalised solution of using data and information to inform citizens with the potential to influence behaviour to reduce energy consumption.

From a city perspective, public officers can use the service to interrogate aggregated community energy usage. All data is anonymous. This permits insight into the particular use of energy in the city. For example, a large number of homes have been provided with insulation based on government-funded schemes. By identifying those with thermal improvement and those without, a view of their impact could be forecasted.

4.4 Integrated Scenario ‘Keith’s House’

Each of the pilot applications deals with the requirements of their corresponding cities. Relocation Service deals with the real estate requirements of Brussels and Urban Planning Services and contains 3D models for buildings in Issy-les-Moulineaux. The Smart Environment Service provides data of energy consumption of Manchester’s households.
In order to enable interoperability of the pilot applications we need to refer to a property that all three pilot applications have in common. Therefore, we label an arbitrary house in Issy-les-Moulineaux’s 3D model as “Keith’s House”. The databases of the other two pilot applications provide virtual data for that particular property. The Relocation Pilot will create a “dummy listing” in the Immoweb database for “Keith’s House” located in Issy-les-Moulineaux. In this manner, the Energy Pilot will create a dummy entry and an energy data stream in EnergyHive’s database for “Keith’s House”. All pilots will in this way provide access to their data to citizens that are not users of their service. Energy data will be viewed by citizens in Issy and Brussels; Relocation data viewed by citizens of Manchester and Issy; and Urban Planning data viewed by citizens of Brussels and Manchester.

The interoperation of the three pilot applications will be demonstrated by applying the following operational and testing schemes in each pilot:

**Urban Planning Pilot**

- The Urban Planning Pilot will allow the area around “Keith’s House” to be explored.
- Navidis will access the Relocation Pilot web-service to retrieve details of “Keith’s House”.
- Navidis will access the Energy Pilot web-service to retrieve energy usage of “Keith’s House”.
- The city administration of Issy-les-Moulineaux can utilise statistical information from the relocation service application in urban planning to take into account the preferences of future citizens for planning.

**Relocation Pilot**

- The Relocation Pilot will allow the property listing details of “Keith’s House” to be retrieved.
- The Relocation Pilot will access the City Planning web-service to explore the 3D city region in which “Keith’s House” is situated in the Issy 3D model.
- The Relocation Pilot will access the Energy web-service to view the energy usage data for “Keith’s House”.

**Energy Pilot**

- The Energy Pilot will allow access to the simulated historic and real-time energy usage data for “Keith’s House” in Issy.
- The Energy Pilot will access the Relocation Pilot web-service to allow the property listing details of “Keith’s House” to be retrieved.
- The Energy Pilot will access the City Planning web-service to explore the 3D city region in which “Keith’s House” is situated in the Issy 3D model.
4.5 Tirgu Mures

Using the combined knowledge and expertise gained from the project and other leading European cities and Living Labs together with the expertise of IBM’s cloud infrastructure, Tirgu Mures, Romania, intends to become a European recognized Living Lab in its own right. The Living Lab will aim to support the European Commission’s work, relating to the Information Society, in the Eastern European and Mediterranean areas.

Tirgu Mures is EPIC’s fourth partner in the pilot phase and will use the Roadmap Strategy as a tool to integrate and use new technologies to enable ‘smarter’ ways of working. By adopting one or more tested services of the three pilot applications to meet public administration, local citizen and SME’s needs, it will provide ‘proof of concept’ in the city for the project. The idea of ‘Keith’s House’ may be adapted to Tirgu Mures in order to also demonstrate the interoperability of the pilot applications at a later stage.

Following the testing and evaluation phases and experiences of the three pilot cities Tirgu Mures will start work from M24 onwards, to adapt one or more services to its needs. While support and training such as regarding user recruitment and management will be offered, the Tirgu Mures leader has been part of all pilot preparation meetings and will participate in all consecutive preparatory and evaluation sessions with all pilot leads organized for each testing cycle, so to ensure the chosen pilot can be successfully implemented in the city at a later stage. The results and validation process are addressed in WP8. Living Lab partners: IBBT; Issy Media; Manchester and ENoLL will work together with Tirgu Mures to help the city create and build its own innovation ecosystem.

The newly created ecosystem will aim to reach a minimum of 500 users. Users will form a group of citizens and SMEs, demonstrating public-private partnerships between the city and the businesses of Tirgu Mures.
5 Common Deployment Strategy

5.1 Living Labs Flexibility

The three pilots each seek to provide feedback on the development of three different products and services. Hence, there is a need for a common approach to encompass the pilot specificities and differences. The deployment strategy therefore, is presented as a broad framework within which each pilot needs to operate.

The deployment strategy consists of five common action points:

- Number of phases and the aim of each phase;
- Number of cycles and the aim of each cycle;
- Overall timing framework of phases and cycles;
- Number of users participating;
- Data capture methodology and analysis.

The annexes of this deliverable highlight the work plan and schedule, the partner role and responsibilities, the communication plan, the data table structure for user data management and the risk management plan that accompanies and underpins the common approach presented below.

5.2 Pilot Phases

The deployment and testing of each of the pilots builds upon the work done in WP4 ‘Service Application Integration’ and described in D4.1, ‘Platform delivery with testing report and Service Catalogue’. The deployment and testing of each of the pilots will follow a common three-phased strategy:

a) Phase 1: Closed User group;
b) Phase 2: Open User group;
c) Phase 3: Evaluation.

Although continuity between and within the three stages is necessary given the iterative nature of the development of each pilot, each phase has its own finality and focus in order to take advantage of the Living Lab approach.

5.2.1 Phase 1: Closed User Group

The commencement of this phase will signal that the EPIC system has ‘gone live’. Each pilot will first be deployed in a limited, closed user group with users carefully selected by each Pilot Administrator. The goal of this phase is to make sure that the services are, from a technical point of view really working. Following the technical testing undertaken for WP4 which investigates system stability of the prototype and is carried out by the pilot technical teams, the main focus is about initial functionality and usability testing. Each pilot will investigate its service compliancy with the scenario and test initial user requirements. The experiences of this test phase will flow back to the technical development teams in order to deploy each of the services in an open, larger community.
5.2.2 Phase 2: Open User Group

With the deployment of each service in the open, larger community, the open user group phase starts. This phase has two dimensions. First each individual pilot will deal with the specificities of its corresponding cities will be tested. Testing will focus on both the service and integration with the platform and its performance. The activities of this community will be monitored and accompanying user research will be conducted. The experiences within each of the pilots will be exchanged on a permanent basis between the pilots themselves and the technical development team of the EPIC platform. This dynamic interaction allows for adjustments and updates on the platform ‘on the fly’ and immediate validation of the outcomes in the pilots itself. Each of these changes will be evaluated in each of the three pilots.

The second dimension of this group is to evaluate the interoperability between the pilot applications and takes a broader view on the EPIC service. This will be done by means of the ‘Keith’s House’ scenario as outlined in section 4.4.

5.2.3 Phase 3: Evaluation

The third and final phase is the evaluation phase. In the first place, stakeholders will evaluate the revised version of the applications and the platform. Second, one or more of the pilots will be deployed in an open user group configuration with the so-called non-advanced city, Tirgu Mures in Romania, as a proof of concept for EPIC.

5.3 Testing Cycles

Within each deployment phase, cycles of testing will take place to analyse and adjust the platform in a series of iterations.

Within the Closed Group Phase, two test cycles are planned. The first will take place in M17. This builds on the testing carried out in WP4 and elaborates on issues of functionality and usability. A period of four weeks is foreseen to implement the changes based on these results and further develop the prototype.

The second testing cycle is planned for M18. Testing results will refine the prototype prior to launch with a larger, open community.

Within the Open Group phase, all pilots will have three test cycles in order to improve the development of the pilots and the integration with the platform. Testing cycles will take place in M20, M21 and M23 as in Table 1.
5.4 Timing Framework

The pilot plan will be deployed in three phases with a number of testing cycles taking place during each phase.

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<td>M21 (w/c 02.07.12)</td>
<td>M23 (w/c 10.09.12)</td>
</tr>
<tr>
<td>Integration</td>
<td>M23 (w/c 24.09.12)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>(Keith’s House)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EVALUATION</td>
<td>M27 – M34</td>
<td>M27 – M34</td>
<td>M27 – M34</td>
</tr>
<tr>
<td>Tirgu Mures</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stakeholders</td>
<td>M24 – M34</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Table 1 Pilot Phases & Testing Cycles

5.5 User Numbers

A key goal of the project is to test the platform in a real world setting with the potential of more than 2,000 users. At least 350 of these will form part of the initial Closed User Group for testing prior to the wider launch with the Open User Group. This second phase will aim to recruit a minimum of 1050 users. During the evaluation phase Tirgu Mures will work with a minimum of 500 users to provide ‘proof of concept’. Additionally, stakeholders from city administrations and other stakeholder groups will carry out testing completing the evaluation phase.

<table>
<thead>
<tr>
<th>PHASE</th>
<th>RELOCATION</th>
<th>URBAN PLANNING</th>
<th>SMART ENVIRONMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLOSED GROUP</td>
<td>200</td>
<td>150</td>
<td>10</td>
</tr>
<tr>
<td>OPEN GROUP</td>
<td>500</td>
<td>500</td>
<td>50</td>
</tr>
<tr>
<td>Advisory Group</td>
<td>30</td>
<td>20 - 50</td>
<td></td>
</tr>
<tr>
<td>Integration</td>
<td>5</td>
<td>5</td>
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</tr>
<tr>
<td>(Keith’s House)</td>
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<tr>
<td>EVALUATION</td>
<td>-</td>
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</tr>
<tr>
<td>Tirgu Mures</td>
<td>15</td>
<td>10</td>
<td>2</td>
</tr>
<tr>
<td>Stakeholders</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

Table 2 Pilot User Numbers
5.6 Data Capture & Analysis

5.6.1 Data Capture

A common area for all the pilots is the management of data. Each pilot project partner assumes responsibility as “data controller” for any personal data collected as part of the project. Responsibilities focus on personal data i.e. data which relates to a living individual who can be identified. As “data controller” each living lab is responsible for ensuring they comply with their country’s legal requirements. Data protection legislation has been harmonised in the EU and hence there should be no significant differences between the national laws. Informed consent is key, ensuring that the volunteers are making an informed decision regarding participation and the subsequent use of their data. The Smart Environment pilot will install equipment in people’s homes. Pilots should ensure documentary evidence of a clear process on how they have informed their participants about what EPIC is and what users are required to do to participate in the project ensuring that participants are consenting to provide data to the EPIC project.

Data will be captured at two levels, on the EPIC platform and in the case of the Smart Environment Service, via the application. This functionality will be offered to pilots and users through user data structures and associated web-services held on the platform.

Following the assessment of the essential data requirements essential for the project and pilot implementation these areas can be defined as:

- Users of pilots must be able to sign-in to the EPIC platform to gain access to the individual pilots for which they have registered.
- Pilot Administrators must be able to grant access to EPIC platform users; control the rights associated with each user and elicit from pilot users during sign-up any pilot-specific data required to enable functionality or to personalise the user experience.
- A set of generic methods will be required so the Pilot Administrators can create / edit / delete user accounts and maintain the data types; roles and other parameters associated with each pilot and user.
- Pilots need to be able to record user interactions with each pilot; both for usability testing and to understand how pilots are used during closed and open testing.

A user data structure has been defined with a series of data tables with appropriate linkage and keys which will be implemented in DB2\(^\text{\textsuperscript{11}}\) on the platform. This data structure is illustrated in Annex IV.

Partitioning of user data into separate linked tables allows access to the platform by registering an email address which is linked to a unique EPICUserID. This provides a degree of anonymity for the users as no personally attributable data is provided except the email address, required for pilot contact purposes. Any additional personal data requirements collected, common to all pilots, will be stored in a separate table. Examples of this type of information would be multiple contact types: email; telephone; mobile and phone numbers.

\(^{11}\text{IBM Database Software}\)
Separation of the data types into common and private tables makes it possible to delete all personal user data but maintain the anonymous records showing user activity in the EPIC usage history and pilot user interaction logs.

The Pilot Administrator can assign access rights to respective pilots following account creation, by creating an entry in the user-pilot-access table which will contain data fields for PilotID, EPICUserID and PilotRoleID.

To provide maximum flexibility for data analysis the tables have been created in such a way that they can be added to at a later stage and provide the ability to download data for subsequent analysis using SPSS.\(^\text{12}\)

Functionality has been built into the data structure allowing the following processes to take place:

- Creation of user accounts
- Pilot access to user data via generic web services
- User data maintenance via generic web services
- User withdrawal from a pilot
- User withdrawal from the platform

It is intended that web survey questions and user responses from the test cycles will be stored using the DB2 database facility.

5.6.2 Data Analysis

The main objective of the closed and open testing activities in WP7 is to investigate the user acceptance and experience with pilot services and EPIC platform. Based on initial project objectives, including the use cases and scenarios, the testing aims to gain insights into technical aspects; functionality and usability; the level of stakeholder ‘smartness’; and the perspective of end users and citizens, during testing and future periods. This evaluation will investigate and measure utility; usability; user interface aesthetics and value of the cloud based platform. This allows conclusions to be drawn on the user acceptance of EPIC by analysing the main determinants of technology acceptance – perceived usefulness (PU) and perceived ease-of-use (PEOU)\(^\text{13}\)

Feedback from user experiences during the pilot test cycles will be collated through user surveys and interviews; partner experiences and feedback; and analytics gleaned from the use of the platform itself, to enable a full end-to-end evaluation of the project and the pilot. More specifically, user surveys and interview scripts will be drafted based upon the identified determinant factors (i.e. use of Likert scales) to understand participants’ usability experiences and technology acceptance. This can be defined as total satisfaction, real usage and the intention to use again.

Questionnaires will be distributed to targeted user groups and also provided on the platform. Interviews will be conducted with administrators who used the platform. Collated data from

\(^\text{12}\) IBM Statistical Package for the Social Sciences

\(^\text{13}\) Technology Acceptance Model, F Davis, 1989
the questionnaires and logging data will be processed. Initially, providing descriptive statistics (averages, standard deviations etc) calculated from all determinant and acceptance factors. Based upon these statistical results and outcomes, conclusions will be formulated as to which are the main acceptance determinants and platform use for eService delivery; what the weaknesses are; areas for improvement and identify the best possible deployment conditions.

These aspects of the project align closely with WP8 tasks which will gather the collaborative results from the pilot services and the overall platform, to understand user response; the issues for future platform deployment and measure project success against original objectives.

More specifically, D8.1 provides a strategic evaluation methodology for analysis of both the qualitative and quantitative data captured from user testing. Detailed analysis of the pilot applications and platform feedback results will be carried out and compiled in the Evaluation Report, D8.2, focusing on achievement outputs and lessons learned. Further evaluation and validation processes will check the performance and completeness of the overall EPIC system, which may result in the additional refinement of the platform and Roadmap. These criteria will be used together with the Roadmap strategy to evaluate Tirgu Mures as ‘proof of concept’ in D8.3.
6 User Recruitment and Management

This section examines how the pilots will select and recruit its pilot users from the community and manage them throughout the phases and testing cycles. The following areas are common to all pilots:

- Profiling of users
- Recruitment and selection
- User requirements and participation
- User retention, support and training

Within this context each pilot will have individual needs and in this section details of how each of the pilots will approach this is presented. The Annexes in the deliverable highlight how these issues are incorporated and taken core of in the work plan and schedule of the pilot operations, the partner roles and responsibilities that underpin their deploying, the communication plan, the risk management and the lessons learnt.

6.1 Relocation Service

6.1.1 Recruitment & Selection

Due to the aims described above and practical considerations, the type of users and the selection criteria will differ between the Closed Group and the Open Group.

Phase 1: Closed group

The aim of the Closed Group is to test the Relocation Service’s technical performance and to ensure it meets the initial user requirements regarding functionality and usability. Therefore recruitment will be from users from within the local Brussels user community. The users will be technologically confident, with basic skills on computer use for testing the web component and have basic knowledge of smart phones for the mobile component.

Our choice of local users as test users in this phase has been informed by the following:

a) Expats participating in the paper prototype sessions (held at IBBT in August-September 2011) and in the technical testing of the initial prototype (held at IBBT in January 2012) showed it is difficult to recruit expats living abroad in Belgium. Expats relocating to Brussels will expect a service that has working functionality and that provides added value for their relocation. Technical testing will be perceived as consuming too much of their time and offers no direct benefit.

b) By providing our test users with a scenario that takes into account different expats’ needs, we minimise the risk of getting test results that are not relevant for the development of the service. This will be discussed further below (see 7.1.2).

Project partner CIBG-CIRB (Brussels Regional Informatics Centre) will recruit these test users with support from IBBT-i.Lab.O. Both will launch internal and external calls to its network and the Brussels community via its newsletter and social media channels (Facebook and Twitter) one month before the start of the first test cycle. IBBT-i.Lab.O
will support the recruitment by launching a call within its own user panel. Contact details of the users (email address) will be assembled and managed by i.Lab.O’s panel manager.

**Phase 2: Open Group**

During the deployment phase in the larger community of the Brussels Capital Region, the composition of test users will change. The potential users are ‘expats’, citizens currently living outside of Belgium or those that intend to relocate within the region and stakeholders from the public administrations and businesses offering services to expats.

*Expats:* There are two different groups of expats since retaining the same group at large for the whole of the testing period might be difficult. For example, expats that have plans to relocate at the beginning of the open group phase might have changed their mind and no longer have an interest in moving to Brussels. Therefore, we will work with a new group of expats in every cycle that will only participate in one test. We call this expats ‘one time experience expats’. However, in order to balance the results of these onetime experience users and to have an input for the whole development process, we will create an “advisory group of expats” who will participate in the three cycles. Moreover, since the relocation service has a web and a mobile component, distinguishing two different groups has the advantage that the web service will be tested by the onetime experience expats and the web service and mobile application by the ‘advisory expats’.

*‘One time experience expat’:* The expat users that will be recruited for each test cycle and test the web component of the relocation service must meet the following three criteria:

1. Be a European Union member states National
2. About to be employed in one of the following sectors:
   a. International institutional sector (the various seats, headquarters, offices, agencies, organisations or representations of international institutions)
   b. International business sector (seats or branches of international companies in the Brussels Capital Region (BCR)
   c. the lobbying sector (representations of cities and regions, international trade unions and professional organisations, NGOs, law firms etc)
   d. the international press
   e. the educational sector (universities, staff of international schools, research centres)
   f. diplomatic corps
3. Have an interest in relocating to Brussels (or are in the process of relocating because of work reasons).
This means that within the current EU-population having an interest in relocating to Brussels, we exclude those that are going to work as independent professionals (restaurants, shops) and people that relocate to Brussels because their partner is Belgian. Their motivation is quite different from the expat we are targeting with this service.

The recruited one time experience expats will belong to the four profiles that can be distinguished within the expat community itself and lead to different needs and demands when relocating:

- expats having a short-term contract (less than 12 months), a middle range contract (1 to 3 years) or a long term contract (three years and more)
- expats relocating alone to Brussels or expats relocating with their partner and/or children
- expats relocating for the first time or expats having relocated more than once
- expats relocating by their own means or expats getting help from special agencies or from their employer

Advisory expats: The members of this group are selected according to the same criteria as the expats; however, they differ in one fundamental aspect: these expats have already relocated to the BCR and have been living and working there for a while. We will recruit those expats that moved to Brussels a maximum of two years ago. Our assumption is that they still have a clear memory about their demands and needs when they relocated and can provide valuable insight based on their experience. These expats will form the ‘advisory expat group’ and participate in the testing of the web and the mobile component of the relocation service.

The recruitment of ‘one time experience expats’ and ‘advisory expats’ will be done by different channels and over an extensive time period. The former will be recruited by i.Lab.O by means of its Living Lab expertise. In addition, i.Lab.O will work together with Expatica for setting up an online campaign performed one month prior to the start of each test cycle. Expatica (www.expatica.com) is an international online media company based in the Netherlands that on a European scale has expats as its core business. The members of the ‘advisory expat group’ will be recruited by i.Lab.O by means of recruitment calls posted on the website of our stakeholders and by a call via the stakeholders’ newsletters and social media channels. Since these users will participate in the three cycles, this call is via these channels launched one month prior to the start of the open group first test cycle.

Stakeholders: A group of 15 stakeholders will represent public authorities and private business offering different services to expats arriving in Brussels. Recruitment of the stakeholders will be done by i.Lab.O using its contact and project partners’ network in the Brussels Region. Public authorities in the BCR: Representing the public authorities operating within the BCR will be the Department of Demography of the City of Brussels; the Brussels-Europe Liaison Office; CIBG-CIRB (Brussels Regional Informatics Centre). The Department of Demography of the City of Brussels will specifically represent the level of communes within the BCR. The Brussels-Europe Liaison office is an agency setup by the Brussels Regional Authority which has as one of its primary tasks to provide assistance to expats when settling in Brussels. CIBG is the Brussels Regional Informatics Centre and as a
public interest body within the Brussels Region aspires to be the high quality technological partner of all public institutions.

Companies in the BCR: Companies that offer services to expats coming to live in Brussels. The members of our stakeholder group will come from different sectors: financial: ING and its financial department for expats; real estate: Brussels Business Flats, Immoweb; relocation agencies: ABRA: Association of Belgian Relocation Agents; expat media sector: Expatica.

Keith’s House integrated scenario:

The users for testing Keith’s House integrated scenario will be expats who are selected from those who already live in Brussels and via stakeholders to attract those who are interested in moving to Brussels. These expats will be recruited following similar criteria as those used for the ‘advisory expats’ and the call will be launched via the different communication channels one month prior to the start of the test.

6.1.2 User Requirements & Participation

Phase 1: Closed group

Requirement: Users testing the web service will be required to have a personal computer with Internet access. Users testing the mobile component will be required to have a smartphone that runs on Android or IOS and master the basic handling operations of their smartphone.

Participation: Every user testing the web component will only participate in one of the two cycles. Their participation involves completing an online questionnaire. Test users of the mobile component will only be tested in the second cycle.

Phase 2: Open group

Requirement: One time experience expats and advisory expats are required to have a personal computer with Internet access and have basic operational knowledge and computer skills. Advisory expats will be required to have a smartphone that runs on Android or IOS.

Participation: One time experience expats will only participate in one of the three test cycles testing only the web component.

Advisory expats will participate in the three cycles. They will test the web component in the first and second cycles. Since both the web and mobile components of the relocation service are developed iteratively, at the third cycle the web component will be almost fully functional to undergo final testing by its target audience: expats living outside Belgium with the interest to move to Brussels. Since in the same third cycle, the final iterations for the mobile component will be completed, the participation of the advisory expats changes. They will now test the mobile component by walking around Brussels and completing a questionnaire. The stakeholders are required to participate in a focus group organised in each cycle. Prior to this a demonstration of the web component (and in the third cycle the mobile component) shall be held. If a stakeholder cannot participate in these focus groups, an
individual demonstration shall be organised and participation in an individual interview shall be required.

**Keith house Integrated Scenario**

The expat end users recruited for this phase will attend a focus group organised at IBBT Brussels, where this scenario shall be demonstrated.

**Evaluation phase**

The stakeholders in this phase will evaluate the pilot and are required to participate in an interview.

### 6.1.3 User Retention, Support & Training

Users in the closed group do not require training. Users will follow a scenario which guides them through the application focused on technological performance, functionality and usability.

The open group will own their technology and be confident in its functionality. Training will therefore be focused on the functionality of the service. Training methods will differ between the types of users in this stage due to specific circumstances of the users:

**Expats**

As these users are dispersed and live abroad. i.Lab.O will make a short manual that pops up as the web application is opened, providing a brief tour through the application. Users will also have access to the FAQ’s. Additionally an online manual will be available.

**Advisory Expats**

The guided tours with the mobile application will be in small groups (5 to 10 people) along with a member of i.Lab.O working on EPIC-project. Before the walk users will receive a 20 minute introduction.

**Stakeholders**

Stakeholders will receive training at the beginning of the Open Group phase (i.Lab.O working on EPIC-project) along with a hardcopy and online manual.

In order to retain users a number of actions will be put in place during all the phases and cycles:

- Telephone and email support by i.Lab.O for problems regarding relocation service and questionnaires / IBM for platform matters
- Emails to different user groups to communicate practicalities and instructions of the testing
- A regular newsletter with general information about the status and development of the project tests
- Minimising the timescales between recruitment and deployment to maintain user interest
6.2 Urban Planning Service

6.2.1 Recruitment & Selection

The Issy pilot will work with test users from the Urban Planning Service expert Living Lab members; pilot stakeholders and inhabitants of Issy-les-Moulineaux. User selection is made according to the pilot test phases and the needs of each user group.

Issy will work with SMEs working in the ICT field. 57% of the companies based in Issy-les-Moulineaux come from the ICT and the Media sector, making the city known as a true Media land. In addition, Issy-les-Moulineaux will work with citizens interested in new ICT applications.

For the Closed User Group Issy Media will recruit technologically confident people. These people will come from the Urban Planning Department of the city and from innovative partner SMEs. The SMEs were recruited via a call for participation managed by Issy Media.

The Open User Group will be made up of Living Lab experts; pilot stakeholders and end-users. It will use representatives from the Urban Planning Department; the Technical Service Department; staff from Issy Media; local innovative SMEs and inhabitants from Issy-les-Moulineaux. Most of users will be recruited from the Citizen Panel, a local group, who are consulted regularly on various local interest subjects.

For the Open User Group phase, users will be recruited via wider communication channels: the city website; the local newspaper Point d’Appui; the regional business magazine L’ECO; “Les Matinales de l’innovation” the monthly show dedicated to local innovative SMEs and via social networks (Facebook and Twitter).

The testing of the pilot integration ('Keith’s House’ scenario) will involve representatives of Issy Media and the Municipal Administrative Centre.

The Advisory User Group will consist of 20 to 50 users. They will participate in the three testing cycles in order to balance and correct eventual corrupted data results from each separate cycle. The advisory user group will consist of Living Lab experts and pilot stakeholders. It will select representatives of the Urban Planning Department; the Technical Service Department; the staff of Issy Media and local innovative SMEs.

6.2.2 User Requirements & Participation

The Urban Planning Service has a user-friendly interface needing only basic PC skills, a computer and high-speed Internet access.

Users are expected to log in to the EPIC platform and perform a number of actions which vary according to the user-group they belong to. Details on the testing actions are provided in Section 8.2.2.

The testing session will end with a questionnaire allowing users to provide feedback on their experience with system usage.
During integrated scenario testing, a focus group will be organised in order to collect user feedback.

6.2.3 User Retention, Support & Training

User training is not required for any of the testing phases for the reasons stated above. Users will follow a simple scenario which will guide them through the application.

The application has a back office content management system enabling local stakeholders (city administrators and SMEs) to manage data in the application (e.g. enrich it with additional points of interest or company-related information).

Support and assistance will be provided by the Urban Planning Service developer via telephone; e-mail and in person at the Urban Planning Centre. Staff members from the Urban Planning Centre will undergo training before the pilot launch, in order to ensure a thorough knowledge of testing in the absence of the service developer. The pilot will maintain constant contact with test-users via email, communicating for e.g. testing practicalities. Test users participating in all testing cycles will be updated on pilot progress and adjustments made since their last testing.

6.3 Smart Environment Service

6.3.1 Recruitment & Selection

Test users will be invited to participate as part of the Manchester Living Lab\textsuperscript{14,15} and will be residents of the City of Manchester. Manchester Living Lab is part of the Smarter Cities initiative.

For the Closed Group Phase MCC will recruit a number of households known to the organisation, principally connected to Manchester City Council. This group of users will be technology confident who will be able to provide insightful feedback around functionality and performance of the application and platform.

For the Open Group Phase, Manchester will seek to work with users recruited from third party organisations and groups. Recruitment will focus on three areas:

- Users with an interest low carbon and “green” activities
- Users with an interest in IOT (Internet of Things)
- Users with an interest in cloud computing.

The intention is to recruit via the Manchester Living Lab cohort, part of the Smart IP project lead by Manchester. The project is interested in developing and testing new digital services. The pilot will also work with other groups for example, a locally based group, Hulme Carbon Coop\textsuperscript{16}.

\textsuperscript{15}http://www.smart-ip.eu/join/

\textsuperscript{16}http://carbon.coop/blog/tag/hulme/
The pilot integration (‘Keith’s House’ scenario) will be focused on users recruited similarly to those for the closed group. To complete the testing in the final evaluation stage a small number of users from Manchester City Council will be engaged to test the final version of the platform prior to launch with Tirgu Mures.

6.3.2 User Requirements & Participation

The system uses a wireless clamp meter which is readily attached to the home electricity meter, which wirelessly and securely connects to the Energy Hive sensor hub. This allows the user to view information about energy use. The system provides for real-time and historical visibility of energy use in the home by taking instantaneous energy readings at six second intervals. Users are required to have a home computer, 24/7 internet access and a spare port on their broadband hub or router. Access to their electricity meter will also be required for the installation of the clamp-meter. An electricity socket is needed to power the Energy Hive sensor hub. They are required to have knowledge of their own computer and an ability to use online systems.

Where required the sensor hub and transmitter can be installed by a competent person, alternatively users can self-install. There is no interference with the electricity system and hence no qualifications or specialist training is required.

As part of their project participation, users will be required to participate in five cycles of testing involving online questionnaires and follow up telephone interviews. These will take place in two phases throughout the period March to September, 2012:

- Closed Group Phase – 2 cycles of testing
- Open Group Phase – 3 cycles of testing

In addition a further cycle of testing will take place with respect to the integration scenario (‘Keith’s House’) with a small number of selected users.

6.3.3 User Retention, Support & Training

The Energy Hive system is relatively simple to use and consists of a main screen with the ability to self-configure. From here users can interrogate to understand and analyse their electricity usage. Navigation is similar to other web services and initial testing has revealed that minimum instruction is required for users with a basic knowledge of the internet. One of the key successes of Web 2.0 technology is ease of use and intuitive on-site learning. However, for those users who require support the following training will be made available:

- Online instruction e.g. installation videos and navigation tutorials
- Installation instructions supplied with equipment
- Telephone help provided by a call centre facility
- Where an on-site installation takes place, the installer will demonstrate the system to the household

The pilot will focus work to retain users by the early identification of disconnected units via monitoring software. The monitoring software will record the number of users currently transmitting energy data and show the timestamp of the last data transmission. This will
allow for simple detection of problems with data transmission and instigate timely follow up actions and support. User monitoring will be undertaken by MCC on a daily basis. Any failed user data transmissions will be identified and user contact will be made by email to resolve any problems. Any unresolved issues will be reported to Energy Hive.

Email updates and newsletters to the community will inform users of pilot progress and help to maintain interest in the project pilot. Telephone and face-to-face support will be offered to correct any issues which may arise. Support will be provided by a call centre facility through the technology partner, Hildebrand Technology Ltd. Users will be encouraged to participate in incentive schemes to build and maintain interest and ensure retention throughout the pilot duration.
7 Implementation

The implementation will take place within the same timeframe across the three pilots. The detailed delivery of the pilot applications is dealt with in D4.2 and D4.1\(^\text{17}\). This document presents the prototype for the pilots and contains for each, application details of the structure, functionality and platform integration.

7.1 Relocation Service

7.1.1 Application, Integration & Installation

The web application that expats living outside Belgium will consult in order to on the one hand, find interesting property to live in Brussels by means of area, housing and point of interest searches and on the other hand save favourite property, is comprised of a series of portlets communicating with each other and with web services to implement the functionalities. These portlets are deployed in the EPIC platform. The overall supported platforms of the web application are mainly limited by the supported platforms of the portal itself. The portlets are accessed by these expats from the platform after logging in, according to their access rights, by using any known web browser (Internet Explorer 6 SP2+, 9 (compatibility view), Mozilla Firefox 3.5+, Google chrome 8+, Opera 10+, Apple Safari 4.1+).

The mobile application is a native application running on iOS and Android devices, communicating with the platform by means of REST/JSON web services optimized for mobile data communication. Users can access the mobile application via the same login and user ID when walking around in Brussels and discovering on the spot their saved favourite property or discovering new interesting real estate.

During the test phases, the application will run for iOS devices with iOS4.0 and upwards and for Android devices with Android 2.3.0 and upwards. Users with smart phones running on Android will have to download the application by clicking on a link that will be published on the portal. Users with an iPhone will have access to the mobile application after having signed up (and be authenticated) as a beta tester, using iOS via the following link: \url{http://bit.ly/zWrzCw}\(^\text{18}\).

7.1.2 Testing

As described in section 6, testing will take place in three phases each made up of several cycles, allowing for adjustments to the platform and application in a series of iterations.

\(^{17}\) D4.2: Delivery of the Three Pilot Applications & D4.1: Platform Delivery with testing Report & Service Catalogue

\(^{18}\) Direct URL: https://testflightapp.com/join/e84eb49002e1619bf470747c3289911-NTAzOTM/
The relocation service will have four main functionalities:

- WHERE TO LIVE: find an area in Brussels of interest based on different community indicators
- FIND A PLACE: execute a full property search and discover the points of interest around an interesting property
- MY FAVOURITES: save interesting property and point of interests in a list of favourites
- LIVING IN BRUSSELS: page with links to institutions, agencies and organisations useful to know in order to relocate and settle well in Brussels.

The web application will have the four functionalities, the mobile application only the first three. Given the aim of the functionality ‘Living in Brussels’ to provide links to websites of various institutions, agencies and organisations this does not match the requirements of an expat walking around in Brussels and mainly discovering property on the web application or adding new real properties and information on point of interests.

As described in D4.2, when the first phase of testing starts, the Relocation Service will initially work with a prototype with limited functionality and breadth of information. These features will be expanded during the iterative testing process and further refinements will be carried out. By taking full advantage of the Living Lab approach, an optimal Relocation Service with a web and mobile component can be developed at the end of the testing period.

The iterations and testing will be carried out according to the following plan shown in the tables below, highlighting each new extension according to (a) each test phase, (b) each cycle within the test phase, (c) the web or mobile component and (d) to one of the four functionalities.
## a) Closed Group Phase

<table>
<thead>
<tr>
<th>Web Component</th>
<th>Cycle 1</th>
<th>Cycle 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Where to live</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Find a place  | - Run full and elaborate search queries on available housing in Brussels: (Postcode for location - Choose to buy/rent – maximum prize…)  
- Show search results in a list and display on a map  
- Show real estate property detail page (detailed description – pictures)  
- Select and display on the map besides a property the first set of points of interest categories. | - Make necessary changes based on data of test users in cycle 1 |
| My Favourites | - Save and review properties of interest to favourites. | - Make necessary changes based on data of test users in cycle 2  
- Save and review interesting points of interest in a list of favourites |
| Living in Brussels | Insert first series of links |         |

*Table 3 Closed Group phase – Relocation web component functionality*
The users participating in either the first or second test cycle for the web component will test at home (when recruited by the external call of CIBG-CIRB) or in their work environment (when recruited via the internal call by CIBG-CIRB). The users recruited for the mobile component in the second cycle will do this either at home or in their work environment.

The testing methodology and implementation will be carried out by i.Lab.O. Test users will follow a scenario and fill in an online questionnaire. Although technical testing will be done, the main focus here is on the functionality and usability of the web and mobile component. By providing a scenario that guides the test users in both cycles and for both components, we tackle the issue mentioned in Section 7 about the social difference between the testers coming from a local community and the actual target audience of the service, being expats living outside Belgium and having an interest in moving to Brussels. The elaborated testing scenario will take into account parameters of expats profiles outlined in Section 7 (relocating alone or with family; getting help from a relocation agency, employer or not; duration of stay; relocating to another city in Europe for the first time or not). Using this, reactions from users will represent possible expats impressions about functionality and usability.

The data capture and analysis will be carried out by i.Lab.O Brussels and the results will feedback to the development team and partners so that the necessary adjustments between
Cycle 1 and 2 and from Cycle 2 can be done for the web application. In the same way, adjustments for the mobile application can be done after Cycle 2.

The tests will take place depending on the day and time the users prefer. It’s only obligatory for the user to participate within the week indicated in Section 6.

At the end of the closed user group phase, the Relocation Service will have three of four functionalities running with basic breadth of information that will already be useful for expats looking for a place to live in Brussels whilst being still abroad. The mobile component will have two of its three functionalities running with basic information so that it can be used by expats exploring property on first arrival in Brussels or as a previous visitor to the area, to allow discovery of property on the spot or exploration of the saved property from the web application. The Relocation Service will be ready to be launched in the open, larger community and to be tested by our user groups of ‘one time experienced expats’, ‘advisory expats’ and stakeholders (city administrations and SMEs).

a) **Open Group Phase**

For the open group phase, the functionalities of the relocation service on both mobile and web service will be further enriched with new features and information.

<table>
<thead>
<tr>
<th>Web Component</th>
<th>Cycle 1</th>
<th>Cycle 2</th>
<th>Cycle 3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>WHERE TO LIVE</strong></td>
<td>Insert page that gives an overview of communities in Brussels with indicators in order to make a choice of an area in Brussels</td>
<td>Changes made based on user data input from cycle 2</td>
<td>Functionality fully operational for final test</td>
</tr>
<tr>
<td><strong>FIND A PLACE</strong></td>
<td>Expand the points of interest categories that can be selected and shown on a map.</td>
<td>Changes made based on input user data from cycle</td>
<td>Changes made based on user data input from cycle 2</td>
</tr>
<tr>
<td><strong>MY FAVOURITES</strong></td>
<td>Changes based on input from cycle 2 closed group</td>
<td>Functionality fully operational for final test</td>
<td></td>
</tr>
<tr>
<td><strong>LIVING IN BRUSSELS</strong></td>
<td>Changes based on input from cycle 2 closed group</td>
<td>Expand and finalise the links to useful organisations and institutions for relocating and settling in Brussels</td>
<td></td>
</tr>
<tr>
<td><strong>OTHER</strong></td>
<td>General look and feel of web service</td>
<td>Changes made based on input user data from cycle 1</td>
<td>Look and feel of web service fully developed for final test</td>
</tr>
</tbody>
</table>

*Table 5 Open Group phase – Relocation web component functionality*
### Mobile app

<table>
<thead>
<tr>
<th></th>
<th>Cycle1</th>
<th>Cycle 2</th>
<th>Cycle 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>WHERE TO LIVE</td>
<td></td>
<td></td>
<td>Insert function that shows community with indicators in order to select an area to find property in</td>
</tr>
<tr>
<td>FIND A PLACE</td>
<td></td>
<td></td>
<td>Changes made on basis input cycle 2 closed group</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Expand point of interest to be selected and shown on map to:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Sport, youth and recreation facilities</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Services</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Cultural facilities</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Religious facilities</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Display communication indicators around selected property</td>
</tr>
<tr>
<td>MY FAVOURITES</td>
<td></td>
<td></td>
<td>Changes made on basis input cycle 2 closed group</td>
</tr>
<tr>
<td>OTHER</td>
<td></td>
<td></td>
<td>Look and feel of mobile app ready</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Insert Augmented reality view</td>
</tr>
</tbody>
</table>

Table 6 Open Group phase – Relocation mobile component functionality

The iterations are organised so that the first two cycles add each to one single functionality (finalise ‘Find a place’ in Cycle 1 and the whole new functionality of ‘Where to live’ in Cycle 2) so that in Cycle 3 we have an almost completely finished web component to be tested for a final time by ‘one experience expats’ and reach therefore the aim of the use case of this component. The ‘advisory expats’ therefore, will test the mobile component in order to test the iterations based on the input from the closed group and provide feedback from the final iterations added in Cycle 3.

As with the closed group, i.Lab.O will be responsible for organising the tests in each cycle and elaborate on the test methodology. The test will be performed by the ‘one time experience expats’ and ‘advisory expats’ from their home in the dedicated week mentioned in Section 6. Users of the web component will do the test and fill in an online questionnaire. Testers of the mobile component will fill in a questionnaire as well after test ‘walk’ in Brussels. Stakeholders will give their opinion and views in a group session organised at i.Lab.O offices.
i.Lab.O will analyse the data and feedback to the technical teams so that iterations can be made regarding the service based on this user data. Also the feedback regarding the platform will be delivered to technical teams so that adaptations can be made.

Apart from basic usability and functionality testing for the new features in the functionalities on both components, the focus of these tests will gradually evolve from Cycle 1 to Cycle 3 of the open group onwards measuring in what way the Relocation Service actually contributes to make citizens smarter in their search for a place to live in Brussels and stakeholders more attentive to needs and demands of expats. Besides questionnaires, logging data, such as amount of use, duration and clicking patterns, will be captured in order to measure the increase of smart use. Participant observation during the mobile testing walks in Brussels will also provide insights. The focus group of stakeholders will give us their view on the use of the application by expats as well as on general interesting data about expats preferences that will be measured.

### 7.2 Urban Planning Service

#### 7.2.1 Application, Integration & Installation

The Urban Planning Service utilises middleware to create a 3D model of Issy-les-Moulineaux. Users can move around the 3D model to access specific geolocation information (display through a tag, stamp, symbol, or through the media centre) and select specific features/functions.

A back office tool will enable the management of data and control other features of the middleware. The application has several levels of administrative rights: super user administrator (EPIC level for managing all types of data), city user administrator (for managing city-related data), and SME user administrator (for managing enterprise-specific data).

There are two ways of connecting to the system and accessing its features:

a. The user uses the login credentials he/she has been provided with. He/she is identified through “Tivoli”\(^{19}\) and gets access to the different features and the testing scenario available for the user-group in which he/she was included. Then the user is logged on into the “websphere” portal.

b. If the user doesn’t have any login credentials (which is likely to occur during the open group phase), he/she accesses the “websphere” portal directly with just the 3D portlet. In this case the user has access to basic information about the city and is invited to execute a very simple testing scenario.

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\(^{19}\) Consult EPIC D4.2 : Delivery of the Three Pilot Applications for more details
7.2.2 Testing

As described in Section 6 above, testing will be executed in three phases each made up of several cycles, allowing analysis and adjustments to be made to the platform and its applications in a series of iterations.

Users will be able to do the tests in their own work environment; from their homes or at the Urban Planning Centre in Issy.

During the closed user group the focus will be on the functionality and the look and feel of the Urban Planning Service. They will be asked to perform the following actions:

- Log in to the EPIC platform
- Check if Unity Web Player is correctly downloaded (automatic)
- Check if the 3D model of the city is displayed in the centre of the screen
- Navigate within the 3D model of the city
- Select any of the thematic layers
- Access the Points of Interest (POI)
- Open the “Media Centre” associated to each POI

Regarding the content management feature, the city administration and the SMEs will be asked to perform specific actions via the back office administration tool:

- The city administration will enrich the application with points of interest through the Discovery; Sustainable development; Urban Planning and Leisure & Culture layers.
- SMEs will enrich the application with information about the company (main activity; contact details; website address and job opportunities etc.)

User feedback will be collected and analysed by the technical development team which will make the necessary changes based on the users’ experience and prepare the launch for the open user group.

Next to the regular testing actions requested in the closed user group phase, new features will be tested such as the management of editorial content, geo-location chat (discussion forum) for the SMEs and direct contact of an SME via the Media Centre.

7.3 Smart Environment Service

7.3.1 Application, Integration & Installation

The Energy Hive portal is one of the primary interactions with the households for the Smart Environment Service (SES) allowing users to see their energy usage; it also provides tools to help understand household consumption. A scenario is provided in D5.1.

This service will be delivered through the portal with support from the Energy Hive web application.

Users of the service are divided into two categories:

- Users or households where Energy Hive monitoring equipment has been installed
• Users without household energy monitoring equipment who choose to access the service via the EPIC portal to view anonymised aggregated ‘city view’ energy usage for the Energy Hive community as a whole.

The installation and equipment set up process will first require users to register using the Energy Hive website\(^{20}\) by choosing a username and entering their email address. These details will then be used to acknowledge the validation of the registration process and will also be stored for future testing follow-up.

As part of the registration process users will provide a household profile, populating data fields about existing energy usage. These fields include:

- Electricity supplier;
- Energy tariff;
- Cost per kilowatt hour (kwhr);
- Monthly budget.

To build a complete household profile and provide energy usage comparisons with other users within the community, additional data fields do require completion. Users select information from ‘drop down’ menus. A data field such as postal code is a compulsory field; other profile information relating to household type and energy used is optional. Examples of these data fields are:

- Postal Code;
- Age of property;
- Type of property (Detached house or flat etc.);
- Number of bedrooms;
- No of adult occupants over 16 years of age;
- Number of child occupants;
- Heating type;
- Hot water (how it is heated);
- Cooking (electric or gas);
- Insulation (cavity wall/loft etc);
- Double glazing.

When all selections have been chosen, users click the ‘update’ button to complete the registration process.

Users navigate to an installation page within the Energy Hive service to set up equipment. The equipment is relatively easy to self-install and this method will be chosen for users of the closed group. Users recruited for the Open Phase will have installations carried out by a local installer.

The Energy Hive kit consists of two elements, an Energy Hive gateway device (sensor hub) with power supply and Ethernet cable, which connects via a broadband router port, and a current transformer clamp (Current Cost). The clamp attaches to an electricity meter cable to sense current flow and wirelessly transmits readings to the sensor hub.

\(^{20}\) www.energyhive.co.uk
Each of the sensor hubs has a unique ‘MAC’ address (a series of letters and numbers) which is entered into the installation page together with the transformer clamp equipment type. The two devices are paired by activating two buttons on the installation page. When successful pairing has taken place a ‘finish’ button is selected. The transformer clamp is attached to the electricity meter cable by a small clamp and is now fully functional and the installation process is complete. By clicking the ‘finish’ button the Energy Hive dashboard will launch.

The dashboard offers real-time usage data, as readings are transmitted at approximately six to ten second intervals. Household data can be compared against the Energy Hive average usage and monitored on two displays. Real-time consumption is shown in kilowatts on a power usage gauge. The second format is graphical showing usage by time intervals and number of kilowatts used. In addition the graph can be configured to show historical consumption over a 24 hour period; previous 7 days or the previous month. This also provides comparative data for the Energy Hive community average usage.

The dashboard has the option to display customer communications, update and manage accounts and household profile information. It can also be configured using a series of widgets under the configuration settings and dashboard layout menus. These two interactions are the responsibility of the Energy Hive Customer Service Representation (CSR) who maintains the configuration and content for the application for Energy Hive customers as well as supporting the API for the EPIC portal. The CSR has the ability to send a system generated password reset via email. Hildebrand is implementing Energy Hive as a backend database, analytics and device management service such that end users will interact with the system through a combination of the EPIC portal and Energy Hive system.

User communications can be sent through either email or portal messages deployed within the message widget and will be displayed on the Energy Hive portal. Messages will be managed by the CSR who has the facility to send to individual users, a user group or all users. There is the opportunity to open up this functionality at a later date.

The Smart Environment Service supports the city in its citizen engagement and their contribution to carbon reduction. The data gathered from Energy Hive users will provide an open data source for energy consumption. It is this aggregated ‘city view’ of energy consumption which will be provided by the EPIC portal.

The City Portal is a web site that has a dashboard design using widgets to implement data views and interactivity. The Portal is modular in that new widgets can be developed and deployed through the framework and targeted at specific end users. The user experience is designed to be secure, easy to use and simple to understand data while presenting a level of detail. Hildebrand will provide four city view widgets and sample jQuery components for EPIC to extend that are configured to work with the Energy Hive API.
Views will be controlled by the EPIC City Portal Administrator who will be able to provision widgets deployed into the portal platform. This will facilitate the configuration and management of the data source and view of the city; management of statistical characteristics of the Energy Hive community and enable the ability to view cities using the City Portal. Configuration options are selected by adding and arranging portlets from the catalogue which can then be placed on the dashboard.

Both citizens and other stakeholders will be able to access the ‘city wide’ view by registering an account on the EPIC portal enabling users to view the city energy portlets. Behind each of the portlets are shared settings that let the city select different filters and aggregate and configure specific portlet parameters. Each city will have its own portal page with the ability to configure a postcode and radius to define community groups.

Page layout will include an instant view; a forecast of power consumption over the next three days; an aggregated average spend figure and a history view to explore. The appearance of these portlets can also be changed with themed configurations. A demonstration of the city portal can be viewed on the website.\(^\text{21}\)

In order for Energy Hive users to access these views an account on the EPIC portal will be required. Platform users will have an account created on the portal by the Pilot Administrator, who will have access rights to assign users to one of the pilot applications. The registration function will be undertaken by a member of the IBBT operations team on behalf of the Manchester and Brussels pilots. A list of all Energy Hive user IDs and corresponding email addresses will be provided to the Pilot Administrator by MCC. This information will be employed to create user accounts and generate a password. This will make use of the common EPIC UserID if one has already been created for the user and also make use of PILOT_SPECIF data to hold certain information such as the MAC address where the energy service user is an Energy Hive customer. Users will receive notification of account set up; user ID allocation and access password by confirmation email.

The Smart Environment service involves the deployment of Current Cost real time sensors and Energy Hive gateways to handle the collection of data and the in home presence with the customer. Device management is necessary to source data and cooperate with the other elements of the entire solution.

Data storage, analysis and retrieval of meter readings are critical functions of the web site and pose a challenge to traditional relational databases. The Hive Analytic Engine is a specialised time series database engine that enables efficient calculation, filtering and storage of time-based readings. The Analytic Engine will be configured with the data streams and statistics that are required by the customer portal.

In order to maintain the health of the Portal system a monitoring and management environment will be deployed that communicates its knowledge to the Energy Hive operations team. This system is a Nagios environment configured with the Portal service topology.

\(^{21}\) [http://www.energyhive.co.uk/manchester](http://www.energyhive.co.uk/manchester)
A web browser is the preferred target client application. However, the Portal solution has the ability to target presentation layers to smart phones, digital photo frames and machine interfaces. Further technical specification of this service can be found in D4.2

7.3.2 Testing

The Smart Environment Service prototype has been evaluated through input from the DEHEMS\textsuperscript{22} project and feedback from initial Energy Hive trials in a small number of test homes. MCC has tested and provided feedback on the support processes. This feedback has been taken into consideration and built into the application design.

Plans for further iterations of the prototype are scheduled during the five testing cycles conducted in closed and open user groups phases, described in section 6. Testing focus will centre on usability, stability and performance of both, the application and City Portal. Each cycle consists of a testing and evaluation phase supporting an iterative process of improvement and further development. Further evaluation will examine user take up levels and frequency of use across the two phases. During the open group trials, the effectiveness of a tool set which allows citizens to create and select their own portlets will undergo testing. Ancillary technical testing is being planned by the technical partner and will be available prior to commencement of the closed group phase.

Various functions within the Energy Hive application and City Portal will be tested by users accessing a login welcome screen which will display a testing scenario. At the end of the session, testers will select an option which will launch a web survey. Each step of the process is evaluated by a number of questions and interface screenshots allowing further assessment of interface related issues.

The survey is hosted by IBBT and provided using a web survey platform. Pilot staff will design and compile application and City Portal specific questions for inclusion in the online surveys. Testing scenarios and survey questions will be adjusted at each round of testing to focus on different aspects of the user experience and allow for refinements to be introduced following the completion of each cycle of testing.

Data from each period of testing will be captured along with implicit tracking via the tracking web services.

\textsuperscript{22} \url{http://www.dehems.eu}
8 Evaluation

Traditionally, technology-oriented companies have tested their products against technical and usability requirements. Human-computer interaction is a discipline in its own right. Experiential aspects were predominantly the focus of the marketing department, which tried to create a certain image\textsuperscript{23} \footnote{http://research.nokia.com/files/VaananenVainioMartila-VUUM.pdf}. The Living Lab approach is user focused and assumes a user-centred development (UCD) approach.

The evaluation of the pilot results is therefore a step-by-step process of collecting, recording and organising information about project results focused on user experience.

The evaluation of the pilots will seek to examine the following:

- What progress has been made in relation to the aims and objectives?
- Are the applications missing any functionality, according to the user requirements gathered in WP2?
- Have the application scenarios developed in WP5 been respected?
- Were the desired outcomes achieved? Why?
- Are there ways that project activities can be refined to achieve better outcomes?
- What are the research questions which the project is seeking to answer?

The evaluation of the pilot results can be analysed at three levels:

a) At the level of the testing itself:
- Was the test’s performance adequate?
- Could the pilots transmit the collected feedback to the technical partners?
- Was the feedback taken into account properly?

b) Living Lab level
- Could the living lab methodology be applied in each of the three pilots?

c) Test-user level
- Did the pilots manage to meet the needs & requirements of the different categories of test-users? For example, for the Urban Planning Service in Issy three categories of users were identified: the city administration (including the Urban Planning department), the citizens and the local businesses (SMEs).

The pilot methodology will contribute to the evaluation parameters (T7.3 ‘Collecting and Reporting the Pilot Data’) the output of which is the D7.3 ‘Pilot Evaluation Report’ – overview of pilot processes, lessons learnt and outcomes. This will include the review of system performance, take-up and feedback from city administrators, citizens, businesses and other stakeholders.
9 Conclusion

The EPIC project is creating a cloud-based platform for software as a service in an atmosphere of increasing consumer demands and the public sector’s need to reduce costs. Taking the user requirements analysis from WP2 with the objective of D7.1 presents the pilot operations plan for the EPIC pilots across three EU cities in real life environments, followed by a subsequent deployment in Tirgu Mures, Romania. Several annexes are included in the back of this document that assist in the execution of the operations plan and which includes: work plan and schedule, partner roles and responsibilities, communication plan, data table structure for user data management, risk management plan: and, lessons learned. Underpinning the deployment is the implementation of the Living Labs which is core to the project approach, providing a common methodology for deployment. The strength of this methodology is that it allows the individual aspects of each pilot to be addressed given that there is no “off the shelf solution” when dealing with unique scenarios.

The next step is for WP8 results and validation to evaluate the levels of pilot success and determine any future changes that are needed. Fundamental to the project is the contribution that the pilots make to creating a business focused Roadmap (WP6) to increase cities level of knowledge about how to become a ‘smart’ city providing added value to cities and citizens through the rapid uptake of new services. The long-term aim is to create a sustainable offering that will provide a wide range of opportunities for new, higher quality sustainable services for citizens and businesses following the close of the project.
10 References

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(2) ALTEC CONSULTING, Study on the potential of the Living Labs approach including its relation to experimental facilities for future Internet related technologies (March 2009) Living Lab methodologies - An update on Living Labs for user-driven open innovation in the ICT domain’ DG INFSOISBN 978-92-79-14873-6

(3) CHESBROUGH (H.), Open innovation: the new imperative for creating and profiting from technology, Boston, Harvard Business School, 2003.

(4) ALMIRALL (S.) & WAREHAM (J.), Living labs and open innovation: roles and applicability IN: Eov. The electronical journal for virtual organisations and networks, 10, Special issue on Living Labs, August 2008 –

(5) BALLON (P.), PIERSON (J.) & DELAERE (S.), Test and experimentation platforms for broadband innovation: examining european practice, in: Conference Proceedings of 16th European Regional Conference by the International Telecommunications Society (ITS), Porto, Portugal, 4-6 September, 2005


(9) FOLSTAD (A.), Living Labs for innovation and development of information and communication technology: a literature review In: Eov. The electronical journal for virtual organisations and networks, 10, special issue on Living Labs, August 2008.
Annex I: Work Plan and Schedule

The work plan and schedule below – Tables 1.1 to 1.7 - provides a framework for each pilot site to develop its own (mini) project plan detailing all the actions that need to be undertaken so to ensure the pilots can easily manage and keep track of their project. It highlights the necessary actions to be taken and results to be achieved, deadlines and the responsible lead/resources for each item.

1.1 Pilot Preparation closed group

<table>
<thead>
<tr>
<th>Activity</th>
<th>Deadline</th>
<th>Lead/Resource</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic functionalities of each of pilot services developed in order to start iteration process</td>
<td>M17, w.18-23.03.2012</td>
<td>Pilot Site Leads</td>
</tr>
<tr>
<td>Panel management operations decided</td>
<td>M17, w.18-23.03.2012+</td>
<td>Pilot Site Leads</td>
</tr>
<tr>
<td>Dissemination campaign set up for launch (press release to local media, project dissemination via shared messages on social media EPIC, via newsletter, via shared pilot messaging and use of EPIC branding tools)</td>
<td>M17, w.05-09.03.2012+</td>
<td>Pilot Site Leads</td>
</tr>
<tr>
<td>Training methods decided and training material prepared</td>
<td>M.17, w.18-23.03.2012</td>
<td>Pilot Site Leads</td>
</tr>
<tr>
<td>Closed User Group Recruited:</td>
<td>M17, w.18-23.03.2012</td>
<td>Pilot Site Leads</td>
</tr>
<tr>
<td>Brussels cycle 1</td>
<td>M17, w.18-23.03.2012</td>
<td>Pilot Site Leads</td>
</tr>
<tr>
<td>Brussels cycle 2</td>
<td>M18, w.16-20.04.2012</td>
<td>Pilot Site Leads</td>
</tr>
<tr>
<td>Issy cycle 1</td>
<td>M17, w.18-23.03.2012</td>
<td>Pilot Site Leads</td>
</tr>
<tr>
<td>Issy cycle 2</td>
<td>M18, w.16-20.04.2012</td>
<td>Pilot Site Leads</td>
</tr>
</tbody>
</table>
Manchester cycle 1 + 2 | M17, w.18-23.03.2012 |
|----------------------|---------------------|
Support processes in place | M17, w.18-23.03.2012 | Pilot Site Leads |
Checkpoint Review to ensure everything is in place to launch the first phase of the pilots | M.17, w.18-23.03.2012 | Pilot Operations Coordinator (IBBT) |

### 1.2 Closed User Group Implementation

<table>
<thead>
<tr>
<th>Activity</th>
<th>Deadline</th>
<th>Lead/Resource</th>
</tr>
</thead>
</table>
Training users | M17, w.26-30.03.2012 + | Pilot Site Leads |
Closed User Group Launch: | | |
Cycle 1 | M17, w.26-30.03.2012 | Pilot Site Leads |
Cycle 2 | M18, w.23-27.04.2012 | |
Ongoing user support | M17, w.26-30.03.2012 + | Pilot Site Leads, Navidis, Hildebrandt, IBBT-i.Lab.O, IBM |
Capturing of feedback from Users | | |
Cycle 1 | M17, w.26-30.03.2012 | Pilot Site Leads |
Cycle 2 | M18, w.23-27.04.2012 | |
Analysis of feedback from users and changes made to pilot service: | | |
Cycle 1 | M.18, 02-06.04.2012 – | Pilot Site Leads and technical partners |
| Cycle 2 | w.16-20.04.2012 | M.18 – M.19, w.30.04-04.05.2012 till w. 28.05-01.06.2012 |

### 1.3 Pilot Preparation open group

<table>
<thead>
<tr>
<th>Task</th>
<th>Date/Period</th>
<th>Responsible</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technological changes done as result of closed user group feedback</td>
<td>M20, w. 03-08.06.2012</td>
<td>Pilot Site Leads, Technical partners</td>
</tr>
<tr>
<td>Dissemination campaign set up and launched (press release to local media, shared messaging via social media EPIC, via newsletters and by use of EPIC branding tools)</td>
<td>M19, w.21-25.05.2012+</td>
<td>Pilot Site Leads</td>
</tr>
<tr>
<td>Open user group recruited</td>
<td>M20, w. 04-08.06.2012</td>
<td>Pilot Site Leads</td>
</tr>
<tr>
<td>Brussels and Issy: cycle 1</td>
<td>M20, w.25-29.06.2012</td>
<td>Pilot Site Leads</td>
</tr>
<tr>
<td>Brussels and Issy: cycle 2</td>
<td>M.23, w.03-07.09.2012</td>
<td>Pilot Site Leads</td>
</tr>
<tr>
<td>Brussels and Issy: cycle 3</td>
<td>M20, w.04-08.06.2012</td>
<td>Pilot Site Leads</td>
</tr>
<tr>
<td>Manchester: cycle 1, 2 &amp; 3</td>
<td>M.20 –M21, w.28.05-01.06.2012+</td>
<td>Pilot Site Leads, IBM, Hildebrandt, IBBT-i.Lab.O, Navidis</td>
</tr>
<tr>
<td>Support processes in place</td>
<td>M.20-M21, w.28-05-01.06.2012</td>
<td>Pilot Site Leads</td>
</tr>
<tr>
<td>Training methods decided and training material in place</td>
<td>M.20-M21, w.28-05-01.06.2012</td>
<td>Pilot Site Leads</td>
</tr>
<tr>
<td>Checkpoint Review to ensure everything is in place to launch each cycle of the pilots</td>
<td>M.21, w.04-08.06.2012</td>
<td>Pilot Operations Coordinator</td>
</tr>
</tbody>
</table>
1.4 Open User Group Implementation

<table>
<thead>
<tr>
<th>Activity</th>
<th>Deadline</th>
<th>Lead/Resource</th>
</tr>
</thead>
<tbody>
<tr>
<td>Launch of Open User Group:</td>
<td></td>
<td>Pilot Site Leads</td>
</tr>
<tr>
<td>Cycle 1</td>
<td>M20, w.11 - 15.06.2012</td>
<td></td>
</tr>
<tr>
<td>Cycle 2</td>
<td>M.21, w.02 - 06.07.2012</td>
<td></td>
</tr>
<tr>
<td>Cycle 3</td>
<td>M.23, w.10-15.09.2012</td>
<td></td>
</tr>
<tr>
<td>Management of pilot and following of Communications Plan</td>
<td>M20, w.11-15.06.2012+</td>
<td>Pilot Site Leads</td>
</tr>
<tr>
<td>Provision of Support</td>
<td>M20, w.11-15.06.2012+</td>
<td>Pilot Site Leads, Navidis, IBBT-iLab.O, IBM, Hildebrandt</td>
</tr>
<tr>
<td>Capturing of Feedback from users</td>
<td></td>
<td>Pilot Site Leads</td>
</tr>
<tr>
<td>Cycle 1</td>
<td>M20, w.11 - 15.06.2012</td>
<td></td>
</tr>
<tr>
<td>Cycle 2</td>
<td>M.21, w.02 - 06.07.2012</td>
<td></td>
</tr>
<tr>
<td>Cycle 3</td>
<td>M.23, w.10-15.09.2012</td>
<td></td>
</tr>
<tr>
<td>Analysis of data and iterations in place on service and platform</td>
<td>M.20, w.18-22.06.2012 till w.25-29.06.2012</td>
<td>Pilot Site Leads, Technical partners</td>
</tr>
<tr>
<td>Cycle 1</td>
<td>M21 till M23, w.09-</td>
<td></td>
</tr>
<tr>
<td>Cycle 2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Cycle 3

1.5 Pilot Preparation Keith’s House – Integrated Scenario

<table>
<thead>
<tr>
<th>Activity</th>
<th>Period</th>
<th>Responsible</th>
</tr>
</thead>
<tbody>
<tr>
<td>Setting the integrated scenario with dummy data in place</td>
<td>M23, w.17-21.09.2012</td>
<td>Pilot Site Leads, Technical partners</td>
</tr>
<tr>
<td>Training methods decided and training material prepared and support in place</td>
<td>M.23, w17-21.09.2012</td>
<td>Pilot Site Leads</td>
</tr>
<tr>
<td>User Group Recruited</td>
<td>M.23, w.17-21.09.2012</td>
<td>Pilot Site Leads</td>
</tr>
<tr>
<td>Checkpoint Review to ensure everything is in place to launch the integrated scenario</td>
<td>M23, w.17-21.09.2012</td>
<td>Pilot Operation Coördinator</td>
</tr>
</tbody>
</table>

1.6 Pilot deployment Keith’s House - Integrated Scenario

<table>
<thead>
<tr>
<th>Activity</th>
<th>Period</th>
<th>Responsible</th>
</tr>
</thead>
<tbody>
<tr>
<td>Launch of Keith’s House-Integrated Scenario</td>
<td>M23, w.10-14.09.2012</td>
<td>Pilot Site Leads</td>
</tr>
<tr>
<td>Management of Keith’s House-Integrated Scenario</td>
<td>M23, w.10-14.09.2012</td>
<td>Pilot Site Leads</td>
</tr>
<tr>
<td>Provision of Support</td>
<td>M23, w.10-14.09.2012</td>
<td>Pilot Site Leads</td>
</tr>
<tr>
<td>Capturing of Feedback</td>
<td>M23, w.10-14.09.2012</td>
<td>Pilot Site Leads</td>
</tr>
<tr>
<td>Evaluation of Results</td>
<td>M23, w. 17-21.09.2012 till w.24-</td>
<td>Pilot Site Leads</td>
</tr>
</tbody>
</table>
### 1.7 Proof of Concept

<table>
<thead>
<tr>
<th>Activity</th>
<th>Deadline</th>
<th>Lead/Resource</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preparation proof of concept (users recruited, training methods decided and material prepared, support in place, dissemination campaign ready for launch) based on feedback from 3 pilots experiences</td>
<td>M20-M23</td>
<td>Tirgu Mures, Pilot Leads</td>
</tr>
<tr>
<td>Proof of concept implemented, tested and evaluated</td>
<td>M24-M27</td>
<td>Pilot Site Leads</td>
</tr>
</tbody>
</table>
Annex II: EPIC Partner Responsibility

This document outlines many actions that need to be undertaken in order to deploy a successful pilot. To ensure all EPIC Partners are aware of their role in the pilots the following table has been drafted.

<table>
<thead>
<tr>
<th>Organisation</th>
<th>Country</th>
<th>Project Role</th>
<th>Pilot Role</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is-Practice BVA</td>
<td>Belgium</td>
<td>Project Coordination/Management</td>
<td>• Pilot evaluation&lt;br&gt;• Project management support&lt;br&gt;• Quality control</td>
</tr>
<tr>
<td>IBBT-i.Lab.O</td>
<td>Belgium</td>
<td>Project Coordination, Living Lab &amp; Pilot Support</td>
<td>• Pilot evaluation&lt;br&gt;• Project management support&lt;br&gt;• Quality control&lt;br&gt;• Pilot Lead Relocation Service Brussels&lt;br&gt;• Set up Living Lab innovation ecosystem&lt;br&gt;• Pilot site management&lt;br&gt;• User recruitment, engagement and retention&lt;br&gt;• User training&lt;br&gt;• Development of user manual relocation service&lt;br&gt;• Primary support&lt;br&gt;• Secondary support&lt;br&gt;• Data analysis&lt;br&gt;• Technological development relocation service</td>
</tr>
<tr>
<td>21c Consultancy</td>
<td>UK</td>
<td>Dissemination and Business planning</td>
<td>• Links to wider dissemination</td>
</tr>
<tr>
<td>European Network of Living Labs</td>
<td>Belgium</td>
<td>Dissemination</td>
<td>• Links to wider dissemination</td>
</tr>
<tr>
<td>Deloitte Consulting</td>
<td>Belgium</td>
<td>Deployment Road Map</td>
<td>• Links to further development of Roadmap</td>
</tr>
<tr>
<td>National Technical University of Athens</td>
<td>Greece</td>
<td>Usability Requirements and Evaluation</td>
<td>• Pilot Evaluation</td>
</tr>
<tr>
<td>ATC</td>
<td>Greece</td>
<td>Front Office Integration</td>
<td>• Technological support Front Office</td>
</tr>
<tr>
<td>Organization</td>
<td>Country</td>
<td>Role</td>
<td>Responsibilities</td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>-------------</td>
<td>-------------------------------------------</td>
<td>-----------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| IBM Germany                       | Germany     | Core Technology                           | • Technological development platform  
• Contribute to remote support 
• Secondary support platform      |
| Fraunhofer Institute FKIE         | Germany     | Technology Specialist and Pilot Support   | • Technological development Relocation Service                                    |
| Issy Media                        | France      | Living Lab and Pilot Partner              | • Pilot Lead Issy Urban Planning Service  
• Set up Living Lab innovation ecosystem  
• Pilot site management  
• User recruitment, engagement and retention  
• User training  
• Development of user manual Urban Planning Service  
• Primary support  
• Secondary support  
• Data analysis                          |
| Manchester City Council           | UK          | Living Lab and Pilot Partner              | • Pilot Lead Manchester Smart Energy Service  
• Set up Living Lab innovation ecosystem  
• Pilot site management  
• User recruitment, engagement and retention  
• User training  
• Development of user manual Smart Energy Service  
• Primary support  
• Secondary support  
• Data analysis                          |
| City of Tirgu-Mures               | Romania     | Proof of concept Pilot Site               | • Proof of concept site management  
• Set up living lab innovation ecosystem proof of concept  
• User recruitment and engagement for proof of concept  
• User training proof of concept  
• Proof of concept primary support  
• Data analysis proof of concept         |
Navidis
France
Technology Specialist and Pilot Support
- Technological development
  Urban Planning service
- Contributor to remote support
- Secondary support
- Contributor user manual
  Urban Planning service
- Data analysis

Brussels Regional Informatics Centre
Belgium
Pilot testing and Support
- User recruitment and engagement closed group
- Support pilot testing closed group
- Technical development Relocation Service Brussels

Birmingham City University
UK
Technology Specialist and Pilot Support
- Technological development platform
- Integration services on platform

Immoweb
Belgium
Technology Specialist and Pilot Support
- Technological development relocation service

Hildebrand Technology Ltd
UK
Specialist Technology and Pilot Support
- Technological development Smart Energy Meter
- Contributor to remote support
- Secondary support
- Contribute to development of user manual Smart Energy Service
- Data analysis

| Table 7 Partner Pilot Roles |

A brief overview of each of the pilot roles can be found below:

**Project Management Support**
Ensures the pilots stay on track through regular reporting and updates.

**Quality Control**
Ensure the pilots and their outputs are meeting the project standards set by the Partners and the European Commissioner through regular quality reviews.

**Technical Development of platform, portal and pilot services**
Creation, maintenance and adaptation of (a) the EPIC-platform, of (b) the platform or (c) one of the three specific pilots.

**Develop user manual**

Partners will work together in order to create the user manuals for platform and services.

**Remote Support**

Partners will work together to ensure that the FAQ answers, online manuals and instructions regarding EPIC platform and/or EPIC services that will sit within the portal are as accurate and as easy to follow as possible.

**Primary Support**

Each pilot lead must familiarise themselves with the workings of the platform and the service so they can provide support to the users if needed. An email address from each pilot site must be advertised on the portals as a helpline. If the individual manning the helpline is away for any length of time then someone else must be designated to deal with any ‘help’ enquiries that come in during that period. All help enquiries must be logged upon receipt and the log reviewed at regular periods.

**Secondary Support**

Secondary support should only be auctioned once all the avenues in remote and primary support have been exhausted. Partners will receive secondary support requests from pilot site managers only.

**Recruitment, engagement and retention**

Pilot leads must follow recruitment, engagement and retaining advice and instructions as well as communication planning set out within this operations plan in order to engage, recruit and retain users for the project.

**User training**

Pilot leads must follow instructions and tasks set out in this operations plan in order to train users when necessary.
Pilot Site Management
Pilot Leads must follow the advice within this operations plan to ensure the pilot sites are set up and managed according to project guidelines.

Setting up Living Lab innovation ecosystem
Pilot Leads must follow the schedule and framework outlined in operations plan in order to set up the Living Lab innovation ecosystem successfully, on time and efficiently.

Data analysis
Pilot Partners will analyse data captured according to the methodology set out in D.8.1 ‘Strategic evaluation methodology’.

Links to wider dissemination
Partners will work together in order to guarantee the further dissemination of the pilot activities and pilot results within broader research community in the European Union.

Links to Roadmap development
Partners will work together in order to provide the necessary feedback for the development and refinement of the EPIC roadmap.
Annex III: Communication Plan

A communication plan is an essential planning tool for setting up and managing successful projects and project stages. A good plan enables strong communication channels to be developed and allows for efficient and effective communication methods to suit the needs of the various stakeholders.

Effective communication ensures information is provided in the most suitable format, delivered at the appropriate time and with the right impact. Building strong relationships between stakeholder groups; improving the flow of information, and strengthening the communication process will enable the smooth running of the pilot implementation phases and assist in achieving the pilot and project outcomes.

There are three main stages in preparing the plan:

- Determine the stakeholders
- Determine stakeholder communication requirements
- Determine effective channels to suit requirements

The first stage of planning determines the target audience and identifies all the stakeholders involved including those who may not be participating in the pilot but have an interest in the wider project process. Throughout the pilot planning and implementation phases all pilots will work with a number of different stakeholders. These may be internal or external to the organisations and have been identified and grouped into generic stakeholder types for the purpose of this plan and are detailed in the following table.

It is important to determine the communication requirements for each of the stakeholder groups. Areas for consideration are:

- what information is required;
- purpose of the information;
- format required;
- frequency;
- appropriate and available channels for accessing information

The choice of methods for delivering this information is based on the above criteria and also the effectiveness and resource implications of that particular delivery channel. Different delivery methods require varying amounts of time for communications preparation. Simple briefing notes and emails take less time to prepare than deliverable reports. An assessment of stakeholder needs has been taken into account when choosing the appropriate communication channels for pilot implementation. These are shown in the table below.

In addition, the three pilots will seek ways to showcase their operations and the three services in the broader community. In this way, the pilots will try to attract potential customers who might like to use one or more pilots in their cities so as to become ‘smarter’; to the broader urban community it may raise people’s interest for the pilot and ‘the smart city’ enterprise and thus boost enthusiasm to participate in testing when recruitment calls are launched, and finally, to disseminate its set-up and learnings within the broader research community regarding cloud computing and smart cities. The communications plan presented below, therefore, will indicate a synergy with the ‘Strategic Communications Plan’ (D9.1)
and the dissemination material created in WP9 (D.9.2: *Dissemination materials including website*) in order to reach out to these other entities:

- shared use of branding – EPIC logos and colours
- utilisation of the project social media sites
- shared press release and media engagement tactics
- shared project messaging
<table>
<thead>
<tr>
<th>TARGET AUDIENCE TYPE</th>
<th>COMMUNICATION TYPE</th>
<th>DELIVERY METHOD</th>
<th>DELIVERY FREQUENCY</th>
<th>RESPONSIBLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Users:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Citizens</td>
<td>Information/Action</td>
<td>Email/Newsletters/focus groups/online surveys with shared use of EPIC-branding</td>
<td>As required/ Monthly/as pilot plan cycles</td>
<td>Pilot Lead/WP Lead/Technical Leads</td>
</tr>
<tr>
<td>• City Administration</td>
<td>Information/Action</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• SME’s</td>
<td>Information/Action</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Project Co-ordinator</td>
<td>Information</td>
<td>Deliverable Reports</td>
<td>As DOW/project plan Bi-monthly</td>
<td>WP Lead/Pilot Project Officers</td>
</tr>
<tr>
<td></td>
<td>Action</td>
<td>Status Report</td>
<td>As required</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Action</td>
<td>Mybbt</td>
<td>Weekly/bi-monthly</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Action</td>
<td>Partner Meeting/Webex Teleconferences/Agendas/Minutes</td>
<td>As required</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Action</td>
<td>Email/telephone/Skype</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Project Partners</td>
<td>Information</td>
<td>Project partner meetings</td>
<td>Quarterlly</td>
<td>WP Lead/Project Co-ordinator/Pilot Leads</td>
</tr>
<tr>
<td></td>
<td>Action</td>
<td>Mybbt</td>
<td>As required</td>
<td></td>
</tr>
<tr>
<td>Project WP Leads</td>
<td>Information/Action</td>
<td>Status Report</td>
<td>Weekly</td>
<td>Pilot Lead/Project Officer</td>
</tr>
<tr>
<td></td>
<td>Action</td>
<td>Mybbt</td>
<td>As required</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Action</td>
<td>Meeting/Webex Teleconferences/Agendas/Minutes</td>
<td>Weekly/bi-monthly</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Action</td>
<td>Email/telephone/Skype</td>
<td>As required</td>
<td></td>
</tr>
<tr>
<td>Project Pilot Leads</td>
<td>Information/Action</td>
<td>Status Report</td>
<td>Weekly</td>
<td>Pilot project teams</td>
</tr>
<tr>
<td></td>
<td>Action</td>
<td>Mybbt</td>
<td>As required</td>
<td>Pilot Lead/Project Officer</td>
</tr>
<tr>
<td></td>
<td>Action</td>
<td>Meeting/Webex Teleconferences/Agendas/Minutes</td>
<td>Weekly/bi-monthly</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Action</td>
<td>Email/telephone/Skype</td>
<td>As required</td>
<td></td>
</tr>
</tbody>
</table>

Table 8 Stakeholder Communication Planning
<table>
<thead>
<tr>
<th>TARGET AUDIENCE TYPE</th>
<th>COMMUNICATION TYPE</th>
<th>DELIVERY METHOD</th>
<th>DELIVERY FREQUENCY</th>
<th>RESPONSIBLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Technical Leads</td>
<td>Information/Action</td>
<td>Status Report</td>
<td>Weekly</td>
<td>Project tech teams</td>
</tr>
<tr>
<td>Action</td>
<td>Mybbt</td>
<td>As required</td>
<td>Tech Team project officers</td>
<td></td>
</tr>
<tr>
<td>Action</td>
<td>Meeting/Webex Teleconferences/Agendas/Minutes</td>
<td>Weekly/bi-monthly</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Action</td>
<td>Email/telephone/Skype</td>
<td>As required</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pilot Staff</td>
<td>Action</td>
<td>Meeting/Agendas/Minutes</td>
<td>As required</td>
<td>Pilot Lead/Project Officer</td>
</tr>
<tr>
<td>Action</td>
<td>Email/telephone/Skype/ad hoc verbal updates</td>
<td>As required</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Suppliers</td>
<td>Action</td>
<td>Purchase Order Requisitions</td>
<td>As required</td>
<td>Pilot Lead/Project Officer</td>
</tr>
<tr>
<td>Action</td>
<td>Email/Telephone</td>
<td>As required</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Action</td>
<td>Meetings</td>
<td>As required</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SMEs</td>
<td>Information</td>
<td>Newsletter/email</td>
<td>Monthly</td>
<td>Pilot Lead</td>
</tr>
<tr>
<td>City Administration</td>
<td>Information</td>
<td>Newsletter/email</td>
<td>Monthly</td>
<td>Pilot Lead/Project Officer</td>
</tr>
<tr>
<td>Other agencies</td>
<td>Information</td>
<td>Website EPIC: shared pilot messaging</td>
<td>Bi monthly</td>
<td>Pilot Lead/WP Lead</td>
</tr>
<tr>
<td></td>
<td></td>
<td>EPIC – Cloudinthecity on Facebook, Twitter and LinkedIn: shared pilot messaging</td>
<td>Bi monthly</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Newsletter ENoLL: shared pilot messaging</td>
<td>Monthly</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Presentations on conferences and workshops with EPIC branding</td>
<td>As required</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Shared press release in local media with EPIC branding</td>
<td>At beginning of each phase (closed-open)</td>
<td></td>
</tr>
</tbody>
</table>
Annex IV: Data Table Structure for User Data Management
Annex V: Risk Management Plan

A robust risk management plan is crucial for obtaining and maintaining high quality pilot operations envisioned by the EPIC project. Therefore, the pilots have decided to base their risk management plan on the Continuous Risk Management (CRM), initially developed by the Software Engineering Institute (SEI) of Carnegie Mellon University. This CRM approach has been adopted by the project as a whole and therefore, will allow potential pilot risk areas to be incorporated into the overall project risk management. At project level the CRM has been documented under D1.3B.

The risk management plan allows for reporting risk identification, analysis and mitigation strategies for the pilots’ operations. Overall, the risk management plan predicts risks that would have an adverse impact on the operations. Therefore, risk management involves:

- the continuous assessment of risks
- identifying which risks would have negative impact on the pilot operations and are important to deal with
- recognising and identifying mitigation strategies to diminish the risks

Continuous Risk Management Approach

The CRM of the EPIC Project is based on the existing risk management practices like the CRM model established by the Software Engineering Institute (SEI) and it follows the continuous risk management approach (Figure 3a).

Figure 3a Continuous Risk Management (CRM) model

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24 http://www.sei.cmu.edu/
The elements of EPIC’s continuous risk management approach include:

1) **Identify** – pilot risks are identified before they become problems;
2) **Analyse** – transforms identified risks into decision-making data;
3) **Plan** – the step transforms risk information into decision and mitigation activities and implements these;
4) **Track** – continuous tracking and monitoring of risk indicators and mitigation strategies;
5) **Control** – implementation of eventual corrections from the risk mitigation plans;
6) **Communicate** – communication between the Project\'pilot partners on the current status.

**Risk Exposure**

Risk exposure is a measure derived from a calculation based on the effect/impact and probability of the risk.

1. **Effect / Impact**: the effect of a defined risk on the Project, which is established based on the risk’s effect on the Project (e.g. performance, cost, schedule, etc.). The levels of impact are: 4-uncontrollable; 3-critical; 2-marginal; 1-negligible;

2. **Probability**: the chance that a particular effect/impact will occur. The levels of probability are: 3-high; 2-medium; 1-low.

The relations between effect/impact and probability are calculated based on the relations presented in the table below:

<table>
<thead>
<tr>
<th>EFFECT/IMPACT</th>
<th>PROBABILITY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>High</td>
</tr>
<tr>
<td><strong>Uncontrollable</strong></td>
<td>HIGH</td>
</tr>
<tr>
<td><strong>Critical</strong></td>
<td>HIGH</td>
</tr>
<tr>
<td><strong>Marginal</strong></td>
<td>MEDIUM</td>
</tr>
<tr>
<td><strong>Negligible</strong></td>
<td>MEDIUM</td>
</tr>
</tbody>
</table>

*Figure 3b Risk Exposure Table*

In case of high exposure to the risks, specific mitigation strategies have to be developed and implemented. The Pilot leads and the WP Lead will monitor identified risks and document and mitigate for possible new risks which may arise throughout the pilot phases. Each risk will be documented and reported on the following risk template. In the case of any risk requiring action in addition to the planned mitigation strategies or any new risk which may impact on the
performance of a task, these risks will be documented and reported in the first instance, to the WP Lead and escalated, if necessary, to the PM for appropriate action.

<table>
<thead>
<tr>
<th>Risk ID:</th>
<th>R7.1</th>
<th>Related WP / Activity:</th>
<th>WP7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date Identified:</td>
<td>6 June 2011</td>
<td>Originator:</td>
<td>MCC</td>
</tr>
<tr>
<td>Identified Risk Description:</td>
<td>Recruitment of and maintaining active engagement of energy measurement participants</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Actual / Potential Impact on the Project:</td>
<td>Insignificant numbers involved in with energy monitoring pilot in Manchester</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Effect (Level of Impact):</td>
<td>3 Critical</td>
<td>Probability:</td>
<td>2 Medium</td>
</tr>
<tr>
<td>Proposed solution / Mitigation strategy:</td>
<td>Recruit additional numbers to ensure some resources. Strategies to promote and keep engagement e.g. newsletters. Working in partnership with housing partners to recruit.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Status:</td>
<td>Identified</td>
<td>Status Date:</td>
<td>24/09/2011</td>
</tr>
</tbody>
</table>

Table 9 shows risks taken from the individual risk analysis templates and summarised into a risk log (this can be read in conjunction with D1.3B Quality Plan). Additional columns may be added to the table to show the scoring rankings, detailed in the Figures above, for impact levels and probability.

Closed User Group

<table>
<thead>
<tr>
<th>Risk Nr.</th>
<th>Risk Statement</th>
<th>Potential Impact on the Project</th>
<th>Proposed solution/ Mitigation strategy</th>
<th>Risk Exposure</th>
</tr>
</thead>
</table>

Figure 3c Risk Analysis Example
<table>
<thead>
<tr>
<th></th>
<th>Recruitment and engagement - non achievement of numbers of users</th>
<th>Required number of testers are not reached for the pilot closed group testing phases. The functionality and usability is not fully tested, resulting in poor technology changes on services, possible problems for open group phase</th>
<th>Improve project dissemination communication and recruitment strategies. Work in partnership with the local administration and appeal to its network to recruit more potential test-users. Closed user group can be slightly extended</th>
<th>Medium</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.</td>
<td>Retention and maintaining closed group users interest is difficult</td>
<td>Poor results and feedback on functionality and usability, might cause problems for open group phase operations</td>
<td>Communication strategies to promote and keep engagement going (newsletters, follow up via email in order to keep personal contact, telephone follow up). Chart and analysis of drop out behavior will be undertaken. Keep time between recruitment and testing short</td>
<td>Medium</td>
</tr>
<tr>
<td>3.</td>
<td>Users only fill in part of questionnaire</td>
<td>Poor results and feedback on functionality and usability, leading to bad development. Might cause problems for open user group</td>
<td>Closed user group can be slightly extended in order to recruit more users and improve results. Results users are saved from the moment they start filling in, so part of responses are captured and will be analysed. Chart and analysis of drop out behavior will be undertaken</td>
<td>Medium</td>
</tr>
<tr>
<td>4.</td>
<td>Delay in prototypes and platform delivery and integration for user testing</td>
<td>Longer development times might increase unwillingness of users to participate in testing</td>
<td>Closed user group can be slightly extended. Additional recruitment will be undertaken</td>
<td>Medium</td>
</tr>
<tr>
<td>5.</td>
<td>Delay in analysis of captured data and delivery of feedback to pilot and platform developers</td>
<td>Longer development times between first and second cycle, might lead to drop out recruited users and cause problems for open user group</td>
<td>Additional recruitment will be undertaken. Second cycle can be slightly planned later</td>
<td>Medium</td>
</tr>
<tr>
<td>6.</td>
<td>Technology down time during closed group trials</td>
<td>Disengagement from test users</td>
<td>Load tests have been undertaken. Maintenance and updates will be scheduled out of peak times</td>
<td>Low</td>
</tr>
<tr>
<td>7.</td>
<td>Monitoring equipment not fit for purpose e.g. defective equipment, equipment malfunction</td>
<td>Reduction in data collected and provided to cloud. User disengagement</td>
<td>Clear specification of requirements. Robust testing prior deployment in field. Utilising equipment that is already in the market place</td>
<td>Medium</td>
</tr>
<tr>
<td>Risk Nr.</td>
<td>Risk Statement</td>
<td>Potential Impact on the Project</td>
<td>Proposed solution/ Mitigation strategy</td>
<td>Risk Exposure</td>
</tr>
<tr>
<td>---------</td>
<td>--------------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------------------------------------</td>
<td>--------------</td>
</tr>
<tr>
<td>1.</td>
<td>Recruitment and engagement - non achievement of numbers of users</td>
<td>Required number of testers are not reached for the open group testing phases leading to poor test results and might risk decision to go to the market</td>
<td>Improve project dissemination communication and recruitment strategies. Given time span between first two cycles and third one, intensive communication must lead to recruitment of additional users. Work in partnership with the local administration and stakeholders and appeal to its network and network of LL-partners to recruit more potential test-users. Second and third cycle can be slightly extended. Potential obstacles like holidays are as much as possible taken into account when planning the cycles.</td>
<td>Medium</td>
</tr>
<tr>
<td>2.</td>
<td>Retention and maintaining interest users and stakeholders is difficult</td>
<td>Poor results on feedback, leading to risk decision to go to market</td>
<td>Intensification of dissemination to increase awareness of importance pilot (newsletter, personal e-mail, telephone follow-up) Chart and analysis of drop out behavior will be undertaken. Keep time between recruitment and testing short</td>
<td>Medium</td>
</tr>
<tr>
<td>3.</td>
<td>Bad planning of test cycles due to unexpected circumstances</td>
<td>Users will not participate in the testing sessions due to external and unexpected circumstances not known before, leading to poor results and risk of decision going to market</td>
<td>Cycles might be slightly rescheduled after internal check between pilots</td>
<td>Low</td>
</tr>
<tr>
<td></td>
<td>Risk</td>
<td>Impact</td>
<td>Mitigation</td>
<td>Level</td>
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</tr>
<tr>
<td>4.</td>
<td>Poor acceptance of deployed technology by users</td>
<td>Impact the outcome of each of the pilots but also danger for exploitation and sustainability of platform and pilots</td>
<td>Enhancing training opportunity for users with technology and Create awareness of technology within user community</td>
<td>Low</td>
</tr>
<tr>
<td>5.</td>
<td>Delay in prototypes and platform delivery and integration for user testing</td>
<td>Longer development times for the integration of pilots impacting the outcome of the project</td>
<td>Update common operations plan in order to resynchronise the three pilots operations, in accordance with demands from other WP tasks and duties</td>
<td>Medium</td>
</tr>
<tr>
<td>6.</td>
<td>Delay in analysis of captured data and delivery of feedback to pilot and platform developers</td>
<td>Longer development times for pilot applications and platform, impacting outcome of the project</td>
<td>Update common operations plan in order to resynchronise the three pilot operations, in accordance with demands from other WP tasks and duties</td>
<td>Medium</td>
</tr>
<tr>
<td>7.</td>
<td>Monitoring equipment non fit for purpose e.g. defective equipment, equipment malfunction</td>
<td>Reduction in data collected and provided to cloud. User disengagement</td>
<td>Clear specifications of requirements. Robust testing prior deployment in field. Utilising equipment that is available in market</td>
<td>Medium</td>
</tr>
</tbody>
</table>

Table 9 Risk Summary Examples
Lessons learned and opportunities for improvement are discovered at each stage of any project life cycle. By documenting these lessons as part of a continuous improvement process this can help to ascertain the root causes of problems which may have occurred and assist in preventing those issues arising again. This repository of information will help to minimise potential risk areas in later stages of the project pilot and can also be used for similar projects in the future.

Information for the Lessons Learned Log will be gathered by individual pilots maintaining a list of issues which can be summarised and documented in the table below. It is essential to ensure that data is collated in a standardised format by each pilot, which can then be consolidated into a master document suitable for subsequent analysis. The inclusion of a unique pilot reference and lessons learned ID would avoid duplication of issues and allow for easier interrogation and analysis of data in the evaluation stages of the project.

Lessons learned issues may arise around the following areas:

- What worked well within the project\'pilot or project team?
- What didn’t work well within the project\'pilot or project team?
- What project\'pilot circumstances were not anticipated?
- What project\'pilot deviations were encountered?
- What tasks and activities require a different approach to make them work effectively?
- Were project\'pilot objectives and targets achieved?
- What changes need to be implemented to meet objectives?

<table>
<thead>
<tr>
<th>Pilot Ref No.</th>
<th>Unique ID</th>
<th>Lessons Learned</th>
<th>Date</th>
<th>Category</th>
<th>Description</th>
<th>Pilot Implications</th>
<th>Action Required</th>
<th>Action task allocated to</th>
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Table 10 Lessons Learned Log