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1. Final publishable summary report

1.1 Executive summary

The overarching goal of the CIVIS project is to enhance, integrate and validate ICT solutions that are able to support energy use and carbon emissions reductions in urban areas by leveraging on the potential of social networks and communities in an innovative way. The CIVIS project main outcome is an integrated ICT platform that is able to realize the proper end-user/community-level framework for communicating and exchanging data and for managing energy generation, conversion, transfer and utilization. The achievement of this outcome relies on the intersection of eight work packages and of the key activities scheduled for the three years of the project (October 2013 – September 2016). These can be summarized with:

- An overall map of the interconnected techno-social energy system and an analysis of the requirements from a technical (energy and ICT), business, and social point of view, including individual and collective user perspectives (WP1);
- An integrated ICT platform and a decision support system (DSS) able to achieve energy savings and reduced CO2 impacts by enabling a close interaction between prosumers and main stakeholders (WP3, WP4, WP5). The platform included an app for end users (YouPower), an app for energy managers in housing cooperatives, a forecasting tool for energy production, and an infrastructure for sensors data acquisition. The platform developed is based upon openness and interoperability principles, and key components have been released under an open-source license;
- A validation in four pilot sites, two located in Trentino region (Italy) and two in Stockholm area (Sweden). The CIVIS technology was validated taking into account its effects in terms of increased energy efficiency, CO2 reduction, user acceptance, and emergent social behaviours to match social needs. Part of these activities were supported by a Participatory Energy Budgeting process (WP7, WP5);
- A set of validated business models and a maturity scheme enabled by the convergence of energy, information, and social networks (WP6);
- A set of best practices for the adoption of the CIVIS technology in other sites/cities/countries summarised in a Handbook (WP2, WP5, WP6, WP7, WP8).

In summary, CIVIS started from the notion that we all (consumers, energy managers, and citizens) are generally inclined to act for improving management of goods for which we have strong, concrete social, cultural and economic interests. In our research, we found that becoming aware that energy is a common good has indeed a strong influence on our motivation for better use and the preservation of it.
1.2 Summary description of project context and objectives

The vision of the CIVIS project is that technical developments in the energy field and changes in the socioeconomic structures are subject to a co-evolution process. To unleash the full potential of this vision, smart grids technology needs to be coupled with broader social and cultural considerations: energy systems should be regarded as complex socio-techno-economic systems. Accordingly, CIVIS explores the potential of social networks and communities to significantly reduce energy use and carbon emissions in urban areas. For that goal, CIVIS developed technology enablers and related business model frames for the resulting energy value system.

This vision represents a challenge in ICT research that lies in between the social world and the energy system. In conventional smart grid approaches, ICT plays a key role in measuring, forecasting, and optimizing the consumption and production patterns and in adjusting the energy flows between different parties. By connecting the two dimensions -- energy and society -- through innovative ICT solutions, CIVIS promotes an integrated approach to energy efficiency, whereby individual and collective preferences as well as social dynamics play a critical role in reshaping how energy is generated and used by the “social human being”.

The following set of measurable objectives can break down the overall goal of the project:

1. To study and analyse the energy requirements, from a social-centric perspective that put both users and in particular social aggregations at the core of an energy-optimized urban area;
2. To augment, integrate and test an integrated ICT platform, relying on existing solutions and technologies, able to effectively link energy grids to the social/business level;
3. To integrate and deploy a decision support system (DSS) able to achieve energy savings and reduced CO2 impacts by enabling a close interaction between prosumers and DSOs/city authorities and by fostering social dynamics;
4. To gain new knowledge about decision patterns, preferences and behaviours of users and communities by monitoring the evolution of their social networks and of their energy-relevant behaviours;
5. To study and analyse novel business models enabled by the convergence of energy, information and social networks, with particular emphasis on the retail market;
6. To provide smart accounting systems for both prosumers and energy providers, allowing them to allocate energy efficiently and effectively according to a multi-dimensional value system;
7. To test and validate the approach, ICT, business models and achievable energy savings in two pilot sites, deriving a set of best practices;
8. To conceive and execute a number of dissemination and exploitation actions aimed at raising awareness of the potential impacts of a social-centric perspective in the design of energy-optimized urban area can achieve.
The main objective of CIVIS was to deploy and test a new, smart model of energy management in a community dimension to promote energy efficiency and reduce CO2 emissions through an interaction of energy, ICT and social systems - “social” intended as a collaborative way of working and as a common goal for a better life. In order to reach this objective, we designed, prototyped and validated our platform in two different national contexts: Italy and Sweden. Thus, the context in which the CIVIS Project has evolved has been characterized by energy related activities in four test sites: Stockholm (Hammarby Sjöstad and Fårdala) and Italy (Storo and San Lorenzo Dorsino). Here follows a brief description of the CIVIS test sites.

1.2.1 Stockholm test sites

In order to test out the various measures proposed under the scope of CIVIS Project two test sites have been selected in Stockholm. The city of Stockholm has high energy efficiency and CO2 emission reduction targets and a strong focus on green urban development. The development of environmentally friendly Hammarby Sjöstad and recently the Royal Sea Port area are evidences of these ambitions. There is also a strong emphasis on improving energy efficiency in existing areas. The selection of test sites represents two somewhat contrasting areas. Hammarby Sjöstad is a new area where environmental goals have been taken into account throughout the construction process, while Fårdala is a part of a large-scale housing expansion carried out during the 1960s and beginning of 1970s. Measures regarding storage and renewables in Stockholm test sites are further discussed in Deliverable 2.1.

Hammarby Sjöstad

Hammarby Sjöstad is a new district in Stockholm where the City has imposed tough environmental requirements on buildings, technical installations and the traffic environment, from the outset of the project. The project has involved regenerating an old industrial brownfield area into a modern mixed-used space with strict environmental goals. When complete in 2017, the project will have about 12,000 residential units, housing some 28,000 people and 10,000 working places. Figure 1 shows the Hammarby Sjöstad area.

Figure 1 Layout of Hammarby Sjöstad area
Hammarby Sjöstad is recognized around the globe for having implemented an integrated approach to district planning incorporating sustainable resource use, ecological design and low-carbon transport. Hammarby Sjöstad operates according to its own “eco-cycle”, the Hammarby Model, which outlines environmental solutions for waste, energy, water and sewage. The Hammarby Model offers opportunities for Stockholm’s citizens to take an active part in eco-friendly living, with access to an integrated waste, water and energy system. At the site, there is a strong tenant driven initiative to improve the environmental goals in the area and to create an innovation-fostering environment.

Fårdala

The Fårdala residential area is a part of Tyresö municipality, which is a part of Stockholm country. The test site comprises of 178 town houses and semi-detached houses divided into three areas Eken, Tallen and Valen. Despite originally not being a part of the Stockholm test site, the area was added due to the availability of individual household data for heating and hot water and a strong focus on energy efficiency. There is also great room for supporting improvements in influencing user behaviours based on some studies conducted by KTH.

Figure 2 Houses in Valen and Eken areas in Fårdala

1.2.2 Trentino test sites

The two Italian test sites are small villages located in the north east of the country (Trentino Region): Storo and San Lorenzo Dorsino. In the latter, the electricity distribution grid is available and managed by CEIS, an electric cooperative that produce and distribute energy to its associate members. There is no thermal distribution grid. Buildings’ energy needs are covered by: biomass, diesel fuel, GPL, solar thermal energy, PV, biogas, geothermal. In Storo, the electricity distribution grid is available and managed by CEdiS, is another electric cooperative. A gas distribution grid (methane) is available and managed by Trenta. Users are mostly families and private citizens.
**Storo**

Storo is a municipality, with an approximate population of 2,800 inhabitants, that is part of the Giudicarie Community Valley local government, in the Province of Trento. Storo is 70km apart from Trento and 50km from San Lorenzo Dorsino. The municipality is located at 400m above the sea level and it covers an area of 63km². Concerning electricity, Storo is served by the Electrical Consortium of Storo (CEdiS): a cooperative founded in 1904 in the lower Chiese Valley with the aim to produce and distribute electricity in the municipalities of Storo, Ledro and Bondone. CEdiS produces electricity using renewable energy sources (hydropower plant and photovoltaic plants) that is sold to the local families (Cooperative members) with a discount of roughly 20% compared to the market price.

**San Lorenzo Dorsino**

San Lorenzo Dorsino is a municipality, with an approximate population of 1,100 inhabitants, that is part of the Giudicarie Community Valley local government, in the Province of Trento. San Lorenzo is 37km apart from Trento and 50km from Storo. The municipality is located at 800m above the sea level and it covers an area of 62km². It is also one of the main access points to the Natural Park Adamello Brenta (largest natural park in Trentino), in the Dolomites. Concerning electricity, San Lorenzo is served by the Industrial Electrical Consortium of Stenico (CEIS): a local based Cooperative institution founded in 1905 and participated by individuals with the aim to support the local territory in managing energy services, particularly the production, distribution and management of electrical energy, within the same community and among participating and supporting parts.

*Figure 3, Storo and San Lorenzo Dorsino*
1.3 Description of the main S&T results/foregrounds

In this Section, we summarize the most significant results, both regarding the project goals and scientific achievements. First we connect the activities of the three years of the project to the objectives outlined above (Section 1.2). Later, we provide an overview of activities done in each of the CIVIS Work Packages (WP). Additional details are available in the [project-s deliverables and related publications].

1.3.1 First year activities and results

The first year of project activities has seen a steady progress towards the above objectives as well as a number of initiatives (e.g. plenary meetings with partners, focused workshops within the partnerships, meetings and events with communities and stakeholders) needed to better define, share and implement CIVIS vision.

During the first year, towards the achievement of objective 1 the project has focused on:

- The definition and selection of actual pilot cases (San Lorenzo Dorsino and Storo in Italy and Hammarby Sjöstad and Fårdala in Sweden);
- The definition of related use cases to form the backdrop of the project (mainly WP1 and WP7, but all partners and stakeholders have been involved in the process through a number of dedicated workshops);
- The analysis of energy-related service requirements that take advantage of the social network dimension;
- The definition of a common holistic view within the partners and the stakeholders (i.e. an “overall map”) of the interconnected techno-social system that fulfils the project vision.

Towards objectives 2 and 3 a thorough investigation of the selected pilot sites has been carried out in WP2 and WP4, with regard to their energy, ICT and physical systems (e.g. sensors). More specifically, the focus of the first year of activities has been:

- The development of a framework for the energy, ICT and physical system analysis;
- The analysis of the current status of the energy, ICT and physical infrastructures status within the selected project Pilot Sites;
- The definition of a set of recommendations for each of the three systems considered (energy, ICT, physical) on possible ways to improve them to foster social participations of users (both users and producers);
- The collection of requirements for the CIVIS ICT infrastructure;
- The proposal of a first design for the overall ICT infrastructure architecture.

With regards to the related sub-objectives in these two objectives (i.e. 2 and 3), research activities have been conducted in an exploratory manner - taking into consideration the limited data availability in the test sites during the first year - focusing on the community aspect of the smart
grid in order to prepare for user profiling and for the platform design. Specifically, in WP3 two parallel and complementary approaches have been pursued:

- First, in line with the CIVIS user stories (WP1), we reviewed relevant literature and developed a smart grid social network simulation model which serves as a tool to experiment with different social networking configurations in order to discover a set of potential metrics and tools that are critical to user community evolution;

- Second, to identify effective user profile visualization for the ICT platform user interface that is able to increase energy and community awareness and foster energy-efficient behaviour, we reviewed recent research works concerning user profile modelling, visualization methods, identified important elements to be included in the user energy consumption visualization. We chose a reference energy consumption dataset and an open energy data model (based on the “GreenButton” standard), and built a prototype using the dataset.

Towards objective 4 the project has focused in WP5 on energy users’ perceptions and attitudes and at the community level. Information for further analysis has been collected through systematic reviews of smart technologies and community energy projects, focusing on:

- Gathering and collating learning from existing and emerging examples of distributed energy communities and collaborative consumption/prosumption about what supports successful community endeavours;

- Identifying the main barriers and the key enablers to awareness, acceptance and engagement, with emphasis on social dynamics, communities, and other forms of social aggregation;

- Identifying the promising types of communities for running energy-focused community-oriented initiatives;

- Identifying strategies and methods for fostering community cohesion and cooperation.

For objective 5 the activities of the first year have focused to establish the context in which the social initiatives of our pilot sites in Sweden and Italy operate and to collect the current business models used by these initiatives. The necessary fact finding has been executed by means of several extensive workshops and interview sessions in Italy and Sweden carried out in both WP5 and WP6. This effort enabled us to establish a baseline from which to start our analysis of the stakeholders and the maturity of the various initiatives and their business models. This is a first step towards reaching the general objective of this work package; being able to guide social initiatives in the development of their business models in order to become sustainable in, what must be described as, a complex and ever changing context of energy transition.

Towards objective 6 and 7 initial activities have centred in a detailed investigation of the pilot sites in terms of energy and ICT systems, socio-economical aspects and data availability and in the development of an appropriate methodological framework for testing and validating the solution proposed that will be implemented in the second year of the project.
Finally, towards achieving **objective 8** initial dissemination activities have focused on:

- the definition of the graphic identity (logo and template) and the dedicated web site
- brochures and leaflets for project vision dissemination
- the design and editions of the first issues of a CIVIS newsletter send to all relevant stakeholders that work and cooperate with the project’s partners

Moreover, with the definition of the use cases, the activities in the related work package - WP8 - expanded also to the design of a number of events and related materials supporting an awareness campaign mainly in the involved pilot sites, e.g. meeting with the communities, meeting with teachers and students.

### 1.3.2 Second year activities and results

Significant general scientific results obtained during the second year of the project can be briefly summarized with:

- The identification of a shared vision that underlies CIVIS project objectives. The concept of Socially Smart Grid has been defined where the social dimension plays a twofold crucial role -- WP1;
- The definition of shared user scenarios/use cases to be used as guiding frames for the evolutionary agile approach that is pursued within CIVIS for the design and development of the integrated ICT platform -- WP1, WP3, WP4;
- The identification and the selection of suitable and promising pilot sites for project validation activities. The two municipalities of Storo and San Lorenzo Dorsino in Italy and the two districts of Hammarby Sjöstad and Fårdala in Sweden all present very interesting and heterogeneous socio-technical alignment of stakeholders and conditions -- WP7;
- The development of a framework for the energy, ICT and physical system analysis and the execution of the analysis of the current status of the energy, ICT and physical infrastructures status, within the selected project Pilot Sites. In connection with the analysis, the definition of a set of recommendations for each of the three systems considered (energy, ICT, physical) on possible ways to improve them to foster social participations of users (both users and producers) -- WP2, WP3, WP4, WP7;
- The collection of requirements for the CIVIS ICT infrastructure; the development of a smart grid social network simulation model (which serves as a tool to experiment with different social networking configurations), and the proposal of a first design for the overall ICT infrastructure architecture (which uses an open energy data model based on the “GreenButton” standard) -- WP1, WP3;
- Gathering and collating learning from existing and emerging examples of distributed energy communities and collaborative consumption/prosumption about what supports successful community endeavours; identifying the main barriers (regulatory, normative and market) and the key enablers to awareness, acceptance and engagement, with emphasis on social dynamics, communities, and other forms of social aggregation;
definition of a baseline from which to start our analysis of the stakeholders and the maturity of the various initiatives and their business models -- WP5, WP6;

- The definition of the graphic identity (logo and template) and the dedicated web site, together with the brochures and leaflets for project vision dissemination and the production of the first two issues of CIVIS newsletter -- WP8.

Significant general scientific results obtained during RP2 can be briefly summarized with:

- The actual involvement of end-users in the four pilot sites, at different levels:
  - Awareness, engagement and recruitment of participants -- WP7, WP8;
  - Installation of sensors and actuators in participants’ households -- WP4, WP7;
  - Research activities such as Co-design workshops, focus groups and baseline surveys -- WP1, WP3, WP5, WP7
- The refinement and consolidation of the intervention frames (use cases) that form the backdrop of the project -- WP1, WP7;
- The realization of Milestone 5 (Integrated System Platform ready for deployment) which includes the implementation of the CIVIS ICT infrastructure for the Energy/ICT level and the implementation of a first version of the open source CIVIS ICT platform for the ICT/Social level (available at https://github.com/CIVIS-project/YouPower/). More concretely:
  - the Energy/ICT level infrastructure (WP4, WP3, WP7), includes: the selection of sensors to allow high-resolution data; the development and integrations of Sensor & Network layers; the deployment of sensors in the pilot sites; the initial data collection (sensors and DSOs) and of the user stories for a first design of technical level features for the Decision Support System (DSS);
  - the ICT/Social level architecture (WP3, WP1, WP5), includes: execution of workshops among partners and WPs; analysis of knowledge coming from co-design workshops with end-users; software design and implementation of CIVIS App back-end and front-ends.
- A consolidated analysis, which built on research activities (i.e. desk research, online surveys, focus groups with end-users in pilot sites), of: (i) individuals’ energy-users perceptions, motivations and attitudes, (ii) participatory dynamics at collective/community level, (iii) barriers/enablers to acceptance and engagement, (iv) types of communities for running energy-focused community-oriented initiatives, (v) strategies and methods for fostering community cohesion and cooperation -- WP5;
- The realization of Milestone 6 (Draft evolution framework for application in practice) in terms of a novel approach to business models that is able to capture the multiple values system of the local energy initiatives and to provide basis for guidance onto their evolution and sustainability -- WP6;
- The furthering of the engagement, dissemination and exploitation activities (WP8, WP9), through:
  - the continuous updated of CIVIS web site and CIVIS Facebook profile;
○ the publication of five joint academic works and participation to several conferences;
○ the publication of two newsletter issues and appearance in several local media news items;

the identification and definition of CIVIS concrete Exploitable areas and the establishment of CIVIS Stakeholder Advisory Board.

The project activities for the 2nd reporting period (RP2) towards the fulfilment of these objectives can be briefly summarized as follows.

With regards to **objective 1** above, CIVIS focused on:

- The actual involvement of local energy stakeholders, at the level of pilot areas (Hammarby Sjöstad and Fårdala in Sweden, San Lorenzo Dorsino and Storo in Italy) for the negotiation and definition of piloting interventions;
- The refinement of the related use cases to form the backdrop of the project (mainly WP1, but pursued in close collaboration with WP3, WP5, WP6 and WP7);
- The update and finalization of the analysis of energy-related service requirements that take advantage of the social network dimension;
- The update and refinement of a shared, holistic view within the partners and the stakeholders (i.e. the update of “overall map”) of the interconnected techno-social system that fulfils the project vision.

Towards **objectives 2 and 3** work has been performed mainly in WP3 and WP4 with connections to WP2 and WP7, in order to implement the infrastructure to support the proper energy data flow. More specifically, the focus of the second year of activities has been on:

- The update and finalization of a framework for the energy, ICT and physical system analysis;
- The update and finalization of the current status of the energy, ICT and physical infrastructures status within the selected project Pilot Sites;
- The definition of a set of recommendations for each of the three systems considered (energy, ICT, physical) on possible ways to improve them to foster social participations of users (both users and producers);
- The implementation of the CIVIS ICT infrastructure at the Energy/ICT level;
- The implementation of a first version of the open source CIVIS ICT platform for the ICT/Social level (available at https://github.com/CIVIS-project/YouPower/).

In more details, pursuing these steps also involved conducting R&I activities that relate to:

A. the Energy/ICT level infrastructure (WP4, WP3, WP7)
   a. the selection of sensors to allow high-resolution data, the development and integrations of Sensor & Network layers;
   b. the deployment of sensors in the pilot sites and the involvement of end-users;
c. the use of the preliminary collected data (sensors and DSOs) and of the user stories for a first design of technical level features for the Decision Support System (DSS).

B. ICT/Social level architecture (WP3, WP1, WP5)
   a. execution of workshops among partners and WPs;
   b. execution of co-design workshops with participant end-users;
   c. software development of App back-end and front-ends.

Towards objective 4 the project has focused in WP5 on individuals’ energy-users perceptions, motivations and attitudes and, at the community level, on participatory dynamics. By building on the preliminary analysis of the first year, further research activities have been conducted at the level of desk-research and of interaction with end-users in pilot sites (e.g. focus groups, baseline questionnaires), focusing on:

- Identifying the main barriers and the key enablers to awareness, acceptance and engagement, with emphasis on social dynamics, communities, and other forms of social aggregation;
- Identifying the promising types of communities for running energy-focused community-oriented initiatives;
- Identifying strategies and methods for fostering community cohesion and cooperation.
- Disseminating, among partners and WPs, emergent knowledge about social aspect for their integration into the design and refinement of user stories and the ICT/Social layer of CIVIS (i.e. App front-end)

For objective 5 the activities of the second year pursued further the definition of the framework in which the social initiatives (local energy initiatives) of our pilot sites in Sweden and Italy operate at the social, economic, and cultural level. The necessary fact finding of the first year, has been considerably extended mainly by means of in-depth interviews carried out within WP6 and in synergy with WP5. Such effort enabled us to enrich and consolidate an evolutionary framework that take into consideration the maturity levels of the various initiatives and their business models. Moreover, a multiple value system frame has been developed in order to support a richer understanding of such initiatives, beyond the traditional business model canvas. This understanding will provide the basis for finalizing sustainability models, for emergent local initiatives, that go beyond the mere, mono-dimensional, economic level.

Towards objective 6, the activities conducted within the scope of WP1, WP3 and WP6 allowed to develop a design for supporting accounting and visualization of energy practices (at households and collective levels) and for delivering useful tips for energy improvement actions.

With regards to objective 7 the joint efforts between WP4 and WP7 allowed to implement the proper measurement infrastructure, which built upon the first year’s investigation of the pilot sites in terms of energy, ICT systems, and socio-economical aspects. The appropriate methodological framework for testing and validating the solution proposed is going to be completed in the beginning of third year of the project.

Finally, towards the achievement of objective 8 the dissemination and exploitation activities,
coordinated from within WP8 and involving the contribution by all Consortium partners, focused on:

- the design and the editions of two additional issues of the CIVIS newsletter send to all relevant stakeholders that work and cooperate with the project’s partners;
- the constant update of the CIVIS website and CIVIS Facebook profile with news about ongoing project results and activities;
- the collaborative identification and definition of CIVIS exploitation areas;
- the further development of the Stakeholder engagement plan, and the establishment of an official stakeholder advisory board (subdivided into two sub-boards);
- the publication of a number of relevant academic works and the;
- the planning and organization of CIVIS mid-term conference;
- participation to several academic thematic conferences.

1.3.3 Third year activities and results

The activities pursued during the third and final reporting period (RP3) considerably expanded and advanced the bulk of the outcomes obtained during RP1 and RP2. Significant project results for RP3 can be briefly summarized as follows:

- The refinement, finalization, and update of the three main user stories/use cases as scenarios for the interventions in the pilot sites, which was done in sync with the actual deployment on site (WP1, WP3, WP5, WP7);
- The production and consolidation of the final evolutionary business framework for local energy initiatives (WP6);
- The completion of users’ recruitment for interventions trials for all sites (WP7, WP8);
- The completion of the development of the backend and the front-end customization of YouPower, the social ICT platform (WP3);
- The completion of the full deployment of the integrated system infrastructure (Energy/ICT platform), specifically tailored for the pilot sites, based on different sensor and software modules, and of its integration with YouPower (WP3, WP4);
- The launch and execution of intervention trials in all sites involved with the full deployment of the platform and data gathering tools or sessions. All trials have been executed in real usage settings, avoiding the use of experimental environments (all WPs);
- The fine tuning and maintenance of the integrated system platform based on real life testing in the pilot sites, mainly focused on:
  - Refinement of the Social ICT platform design guidelines (WP3);
  - Bug fixing and improvements of the Energy/ICT and Social/ICT platform components (WP3, WP4).
- The publication of the finalized CIVIS platform as an open source software system with its documentation and codebase (WP3);
- The collection, systematization, and processing of data streams from the pilot sites (WP3, WP5, WP7);
• The analysis of collected data for the final assessment of the CIVIS platform in all of its key dimensions: Energy, ICT, Social;
• The realization and fulfilment of Milestones 7 (Final Integrated System platform) and 8 (Pilot sites validation phase assessment);
• The pursuit of the dissemination and exploitation of CIVIS outcomes, by different means:
  ○ CIVIS Mid-term (Verona, Italy) and Final Conferences (Stockholm, Sweden) (WP8);
  ○ Production of Build Your Own CIVIS Experience! - CIVIS Exploitation Handbook (WP8);
  ○ Engagement and Interaction with local and international stakeholders through partners’ networks and CIVIS Stakeholders Advisory Board (SAB) (WP8, WP9);
  ○ Publication of academic journal articles and participation to international conferences (all partners/WPs involved);
  ○ Submission of several project proposals that continue developing or adopting part of CIVIS outcomes at national and international levels (several partners involved);
  ○ Formal expression of interests by local and international stakeholders in adopting part of CIVIS outcomes (WP1, WP7, WP9);
  ○ The future further developments of the Swedish customization of the Social/ICT platform, in the context of new national funded project;
  ○ The initial agreements for the adoption of the Italian customization of the Social/ICT platform by the Electric consortia;

The project activities for the 3rd reporting period (RP3) towards the fulfilment of these objectives can be briefly summarized as follows.

With regards to objective 1 above, under the scope of WP1 (pursued in close collaboration with WP3, WP5, WP6 and WP7) CIVIS focused on:

• The continued pursuit of a dialectical and mutually beneficial relationship with the contexts of the pilot sites, in an action-research approach. This translated in further efforts for interacting with local energy stakeholders, at the level of pilot sites (Hammarby Sjöstad and Fårdala in Sweden, San Lorenzo Dorsino and Storo in Italy) for the final alignment, refinements and steering of piloting interventions;
• The finalization and validation of the use cases/user stories that form the backdrop of the project by means of deployment in the pilot sites;
• The finalization and validation of the energy-related service requirements that take advantage of the social network dimension.

Towards objectives 2 and 3 work has been performed mainly in WP3 and WP4 with connections to WP7, in order to finalize the implementation and to deliver the full deployment of the CIVIS platform for the intervention trials. Broadly, the focus of the third year of activities has been on:

• The finalization of the development and the full deployment for trials of CIVIS platform (Energy/ICT and Social/ICT levels) within the pilot sites;
• The maintenance of the running underlying systems;
• The integration into the platform of the feedback on the system behaviour coming from real-life testing conditions.

In more details, pursuing these steps also involved conducting R&I activities that relate to:

A. the Energy/ICT level infrastructure (WP4, WP3, WP7)
   a. the deployment and maintenance of Sensor & Network layers during intervention trials;
   b. the deployment and maintenance of sensors in the pilot sites at the level of ‘end-users support’;
   c. the use of the collected data (sensors and DSOs) and of the user stories for a refined, finalized design of the technical level features for the Decision Support System (DSS), including the deployment and validation of a subsets of these.

B. ICT/Social level architecture (WP3, WP1, WP5)
   a. completion of software development for the Italian customization of the front-end and refinements for the main front-end and the Swedish customization one;
   b. iteration of the software development (debugging, refactoring and refinement), and important peripheral functions such as the tailored support for user registration processes at both pilot sites;
   c. the documentation and publication of the software (and server) setup;
   d. implementation of the proper system logging features for data gathering and analytics;
   e. Production of documentation and polishing of resources for wide adoption and public use by external stakeholders and developers;
   f. Updates based on real life testing in trials of the system design guidelines;
   g. data gathering sessions (focus groups and workshops) to collect feedback on system acceptance and support engagement on system use;
   h. updates and consolidation of the open source resources (documentation, server setup, code base, localizations) available at https://app.civisproject.eu/.

Towards objective 4 the project continued pursuing its focus on individuals’ energy-users perceptions, motivations and attitudes and, at the community level, on participatory dynamics. By building on the preliminary analysis of the first two years, research activities have been conducted at the level of desk-research and, mainly, field work on site: iterations of focus groups, workshops and surveys focusing on:

• Fieldwork and research activities for better understanding the barriers and key enablers to awareness, acceptance and engagement, with emphasis on social dynamics, communities, and other forms of social aggregation;
• Identifying the promising types of communities for running energy-focused community-oriented initiatives;
- Identifying strategies and methods for fostering community cohesion and cooperation.

- Disseminating, among partners and WPs, knowledge about social aspect in support of validation of platform design and implementation.

For **objective 5** the activities of the third year improved, extended and finalized the definition of the framework in which the social initiatives (local energy initiatives) of our pilot sites operate at the social, economic, and cultural level. The necessary fact finding of the first two years, has been considerably extended by means of further in-depth interviews carried out within WP6. Such effort enabled us to enrich and consolidate the evolutionary framework that take into consideration the maturity levels of the various initiatives and their approaches to business models. Moreover, the use of the multiple value system frame supported a richer understanding of such initiatives and provided the basis for finalizing sustainability models, for emergent local initiatives, that go beyond the mere, mono-dimensional, economic level.

Towards **objective 6**, the activities conducted within the scope of WP1, WP3 and WP6 allowed to develop and deploy for testing the features for simple smart accounting and visualization of energy practices (at households and collective levels) and for delivery of useful tips for energy improvement actions.

With regards to **objective 7** the efforts of WP7 (in connection with WP3, WP4 and WP5) allowed to finalize the implementation of the proper measurement infrastructure, which built upon the efforts of the previous years around the energy, ICT systems, and socio-economical aspects.

- the appropriate methodological framework and infrastructure for testing and validating CIVIS platform has been completed at the beginning of the third year of the project;
- the proper infrastructure for data flow, storing and analysis has been put in place and run for the whole trials duration;
- performing the analysis of energy data, ICT usage data and social acceptance has been performed.

Finally, towards the achievement of **objective 8** the dissemination and exploitation activities, coordinated in WP8 (and involving the contribution by all Consortium partners) focused on:

- the editions of the two final issues of CIVIS Newsletter and their dissemination to all relevant stakeholders working and cooperating with the project’s partners;
- the continuous update of CIVIS website and CIVIS Facebook profile with news about ongoing project results and activities;
- the execution of CIVIS Mid-term (Verona, Italy) and Final Conferences (Stockholm, Sweden);
- the production of Build Your Own CIVIS Experience! - CIVIS Exploitation Handbook;
- Engagement and interaction with local and international stakeholders through partners’ networks and CIVIS Stakeholders Advisory Board (SAB);
- the publication of academic articles in scientific journals and the participation to international conferences;
• the submission of several project proposals that continue developing or adopting part of CIVIS outcomes at national and international levels;
• the collection of formal expression of interests by local and international stakeholders in adopting part of CIVIS outcomes;
• The future further developments of the Swedish customization of the Social/ICT platform, in the context of new national funded project;
• The ongoing negotiation for the adoption of the Italian customization of the Social/ICT platform by the Electric consortia.

1.3.4 WP1 - Overall design of the smart energy cities

General objective
The main goal of WP1 was to draw a map of the overall requirements that a smart energy-optimised city, according to the project vision, needs meet from the perspective of three converging networks - ICT, energy and social. WP1 provided the guidance that the other WPs followed in order to design, integrate, deploy and test its various components in a holistic way. It defined the main use cases underlying the project, and provided an overview of services that will be provided to the main stakeholders (peers, communities, utilities, telecoms). It outlined how the ICT platforms and services are interwoven with the social system and the energy network, clarified the requirements for envisioned interfaces between three converging networks, and defined general principles on how the components to be integrated will be able to communicate with each other.

Significant results and achievements (first year):
The highlights were the creation of user stories and the conceptual models of Energy Data Loop and Socially Smart Grid.

Significant results and achievements (second year):
The main achievement of WP1 during the second year of the project has been the convergence and consolidation of the project vision into more concrete and actionable use cases, defined as user stories in our work. This outcome can be visible through:
• the refinements and better specification of the Socially Smart Grid concept;
• the refinements and selection of the user stories into more concrete guideline artefacts;
• the updates of social and service requirements;
• the consolidation of Action Research as the main approach to be used in the WP.

Significant results and achievements (third year):
The core goal of WP1 for the Third year has been the finalization the overall map and the user stories to be done in tune with the final developments of CIVIS platform implementation and deployment.

Main achievement of WP1 has also been the finalization of the use cases (user stories, in our
work) in tune with the actual deployment of interventions in the test sites. This outcome can be visible through:

- The finalization of the Socially Smart Grid concept;
- The finalization of the user stories into concrete guideline artefacts;
- The finalization of social and service requirements;
- The consolidation of Action Research as the main approach to be used in the WP.

Close interactions with other WPs (WP3 and WP5 in particular) have been fruitful for ensuring that the final user stories embed the key principles and requirements coming from the ICT and Social layer. Furthermore, similarly to previous reporting periods, additional interactions took place with local stakeholders, pilot sites leaders and partners involved in the deployment, to keep in sync the actual deployment of interventions and the final version of requirements and user stories.

Several meetings with local stakeholders took place during the second and third project years in the pilot sites in order to refine the final versions of the user stories, to align involved stakeholders about ongoing deployment of the intervention:

<table>
<thead>
<tr>
<th>Date / Location / Pilot Site</th>
<th>Descriptive title of meeting</th>
<th>Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>14 October 2015/Stockholm/Sweden pilot sites</td>
<td>Stakeholder Advisory Board</td>
<td>6</td>
</tr>
<tr>
<td>November 2015-February 2016/Stockholm/Hammarby Sjöstad</td>
<td>5 App signup meetings with energy managers</td>
<td>2</td>
</tr>
<tr>
<td>February-March 2016/Stockholm/Hammarby Sjöstad</td>
<td>7 Meetings with housing cooperative stakeholders</td>
<td>2</td>
</tr>
<tr>
<td>22 September 2016/Stockholm/Sweden pilot sites</td>
<td>Stakeholder Advisory Board</td>
<td>6</td>
</tr>
<tr>
<td>30 September 2015/Ponte Arche/Italian pilot sites</td>
<td>Presentation of predictor of energy consumption model</td>
<td>7</td>
</tr>
<tr>
<td>1 October/Trento/Italian pilot sites</td>
<td>Stakeholder Advisory Board</td>
<td>18</td>
</tr>
<tr>
<td>8 October/Trento/Italian pilot sites</td>
<td>Meeting to discuss TOU signal with heads of consortia</td>
<td>6</td>
</tr>
<tr>
<td>14 October 2015/Verona/Italian pilot sites</td>
<td>Stakeholder Advisory Board</td>
<td>17</td>
</tr>
<tr>
<td>7 March 2016/Trento/Italian pilot sites</td>
<td>Stakeholder Advisory Board</td>
<td>13</td>
</tr>
<tr>
<td>5 July 2016/Trento/Italian pilot sites</td>
<td>Stakeholder Advisory Board</td>
<td>16</td>
</tr>
</tbody>
</table>
1.3.5 WP2 - Energy and ICT System Analysis of Pilot Sites

**General objective**

The objective of WP2 within CIVIS was to analyse the potential for distributed energy management in the pilot sites as well as the utilization of ICT systems and standards for devices to enable distributed energy management at the individual peer and community levels. It had, furthermore, the goal to develop recommendations for future enhancements concerning energy and ICT systems and changes in the use of existing systems. All WP2 tasks were finished within the 1st year of CIVIS, with some work dedicated to the resubmission of D2.1 during the 2nd year.

**Significant results and achievements (first year)**

From the model-based analysis of the Italian test sites it can be inferred that in terms of annual cost the results suggest consistent economical savings up to 12% in both communities investigated. It is also possible to both minimise energy cost while reducing CO₂-emission whereby the latter might be lowered by up to 71% according to the optimisation approach. Likewise, energy system dependency is highly improved.

The results of the optimisation for the Swedish test site Fårdala indicate that, based on the employed data and methodology, the current system is the most optimal in terms of overall energy supply costs, primary energy consumption and CO₂-emissions.

1.3.6 WP3 - Enabling SMART social participation

**General objective**

The focus of WP3 was the design and development of ICT technology for enabling social participation in the energy network. Besides its technological aspects, the smart grid also has a clear social component: consumers and small-scale producers together form an energy community. Such communities can be based on shared geographical location, but they can also form based on shared values, joined sustainable and social goals, assuming the potentials of users’ collective action, pro-social values and sense of community. The idea was to offer smart grid users a web based platform of “smart grid social networks”, as a part of the CIVIS ICT system’s functionality, where users can share interests, exchange experiences with the community, compare (and compete) energy consumptions, etc.

**Significant results and achievements (first year)**

Preliminary simulation results showed that:

- A low level of user presence is more critical to smart grid social network growth than a low level of user activity.
- A low level of user awareness does not decrease smart grid social network growth as long as there is sufficient user activity in the social network.
- Negative smart grid social network growth is more easily triggered (by negative experience) than positive growth (being triggered by positive experience).
Based on the literature review and state-of-the-art in energy data visualization, we identified the following elements that should be included in an effective visualization:

- Information of the cost of energy consumption and on the corresponding CO2 footprint;
- Usage of tangible units for consumed energy (e.g., trees needed to offset the CO2 produced);
- Current consumption levels, classified in order to make it accessible to users (e.g., traffic light colour code);
- Comparison with neighbours with similar types of households and with energy-efficient neighbours;
- Context-aware and personalized tips for increasing energy efficiency;
- Ability to set goals for consumption;
- Ability to join existing challenges/competitions;
- Ability to create new challenges/competitions;
- Ability to donate/share excess energy produced and/or energy saved.

**Significant results and achievements (second year)**

The main contribution of the WP was the YouPower software package. This package is open source and available to others at [https://github.com/CIVIS-project/YouPower/](https://github.com/CIVIS-project/YouPower/)

Activities in this WP have also lead to a conference publication and a poster presentation:


Both the paper and the poster have been presented at international conferences in Taipei, Taiwan and Helsinki, Finland respectively.

**Significant results and achievements (third year)**

WP3 continued and completed the design and development of the CIVIS software platform *YouPower*, focusing on the front-end application and the social level ICT services related to users/prosumers, households, communities and energy presumption (production is only at the Trento test site). WP3 also furthered research in environmental psychology and energy intervention literature, and improved and expanded the design guidelines based on the literature research and our design experience. The 3rd year’s work also includes the iteration of the software development (debugging, refactoring and refinement), and important peripheral functions such as the tailored support for user registration processes at both test sites, the documentation and publication of the software (and server) setup, and the improvement of the YouPower website to provide up-to-date information of the application and to increase visibility.
The first deployment of YouPower at the Stockholm test site was in November 2015 and at the Trento test site in March 2016. The production server (i.e. YouPower server) since then has been updated each time when there are changes ready for deployment during the maintenance and improvement process.

The improved proposition of design guidelines to address attitude-behaviour gap in energy conservation and load-shifting.

The YouPower platform is designed and created as an open distributed system that is composable and can be reused, adapted and extended (under Apache v.2 license) upon different levels of integration related to energy conservation and load-shifting interventions.

About half of the Housing Cooperative part of YouPower and the corresponding back-end (including database) development was completed in the 2nd year.

The majority of the Energy Awareness part of YouPower and the corresponding back-end (including database) development was completed in the 3rd year.

The documentation and publication of the software (and server) setup. The improvement of the YouPower website.

1.3.7 WP4 - Integration and deployment of the system level ICT systems

General Objective

WP4 took care of the integration and deployment on the pilot sites of an innovative ICT system infrastructure enabling a number of innovative user-level applications. The ICT Platform enabled a series of functionalities under “social” and “energy” profiles and it can be divided into two layers, consisting of two sub-platforms, the Social ICT Platform (WP3) and the Energy ICT Platform (WP4). The main objectives of WP4 were related to: the design of proper system-level architecture and the requirements analysis, the selection and integration of the system-level interfaces, the integration of a large-scale sensor communication network using standard protocol, the development of middleware modules to enable functionalities at the user-level and the deployment of the designed infrastructure within the pilot sites.

Significant results and achievements (first year)

Finalization of the deliverable “D4.1 System Requirements, architecture and interfaces” that provides the architecture specifications and system requirements of the ICT Platform as well as the technical solution specifications for system-level interfaces. This deliverable includes the results of the tasks T4.1 (Architecture Design and Requirements Definition) and T4.3 (System-level interface integration).

Significant results and achievements (second year)

The most important achievements within WP4 activities concern the development and integrations of Sensor & Network layers and their deployment in the pilot sites. In particular, a good selection of sensors allowed for the collection of high-resolution data from the test beds, providing a good basis on top of which to build up upper layers. Collected data represented
moreover a first knowledge base that has helped in the design of DSS level features.

**Significant results and achievements (third year)**

Activities in the third year of project leveraged on results achieved during the previous years, namely the system definition and the platform enablers development.

For the third year of the project, the main objectives of WP4 were those related to task T4.5, concerning the deployment of instances of the integrated system infrastructure, specifically tailored for the two pilot sites and the activities for evolutionary maintenance, bug tracking and support to the pilot sites on the ICT infrastructure.

The task required a deployment executed according to an incremental integration plan based on Agile methodology, applying a bottom-up approach as follows:

- Sensor cloud: each existing data source (meter, temperature sensor etc.) inter-faced with the proper adapter at sensor level, and each property relevant to the energy optimization represented in interoperable format.
- The intelligent control units (ICUs) integrated wherever available in pilot sites, or low-cost devices plugged on top of existing meters to collect the energy consumption inputs.

For each pilot site, an instance of the software back-end system software platform running on a virtualized server farm storing data into secure databases and make them accessible by the social platform.

The most important achievements within WP4 activities is the completion of the deployment of instances of the integrated system infrastructure, specifically tailored for the pilot sites, based on different sensor and software modules, and of its integration with CIVIS social ICT platform and application developed in WP3.

1.3.8 WP5 - Community Participation: Social, Regulatory and Institutional Dimensions

**General objective**

The main goal of the WP5 was to investigate the barriers, drivers and pathways to individual and collective prosumer participation in community energy markets. To understand the non-technical issues of community energy both primary and secondary research has been conducted: namely, an analysis of current regulatory contexts, and reviews of „smart“ technologies and existing community energy projects in the EU. In these research activities, we have been evaluating, in particular, the regulatory, institutional and market contexts, and identifying opportunities, challenges and risks for distributed energy sharing/trading.

**Significant results and achievements (first year)**

WP5 was in the first year of the project deepening its understanding of the distributed and social energy initiatives and the context for them, and is working to integrate these insights with findings from other CIVIS Work-Packages. This integration, and closer collaboration with leaders of related WPs, will be stepped-up going forward from month 12.
**Significant results and achievements (second year)**

- Collaboration with site partners to carry out fieldwork with local residents including focus groups, workshops and surveys.
- Gaining a deeper understanding of the potential strategies and levers for increasing participant engagement with community-based energy initiatives and potential beyond state-of-the-art roles for ICT to support these. Several specific recommendations for ICT roles and functionalities for engagement were developed and laid out in deliverable D5.2, some of which will be incorporated into the ICT on the CIVIS trials, others may be explored in later work. Specifically, what emerged from this work is that ICT could play a triple-role as an engagement tool, a research tool and a project design tool and the inter-connections and overlaps between these were stressed. Some concrete examples and illustrations are discussed in D5.2 delivered at the end of the second reporting period. These include: better feedback of benefits and impacts of the initiative and of the social gratification elements to be enjoyed from collective action; one suggestion made for ICT design which could support engagement is to focus on maximising the experience of social presence in ICT-mediated interactions in order to foster increased engagement through greater sense of relatedness, sense of community, collective self-efficacy and greater normative influence.
- Inputs made into the design process for developing the project ICT (platform/App) for use at the CIVIS pilot sites.
- The content in D5.2 (delivered in M24), combined with findings from the trials at pilot sites, provides the basis for publications in 3rd year.

**Significant results and achievements (third year)**

There were two WP5 tasks in the third year: T5.3 Trial behaviour assessment (t12–t36) and T5.4 Community engagement and support plan (t24–t35). The main objectives of these tasks were:

- identify drivers and barriers to the engagement and behaviour change at both individual and community levels;
- assess and wider spillover effects/impacts of social energy market on subjective wellbeing, behaviour and the community;
- evaluate the added value of community-level engagement and action (relative to individual level);
- assay segmentation of users of potential use for increasing impact and scaling-up.

The final WP5 deliverable, D5.3, was focused on learning from the interventions at the pilot sites and is necessarily based on the available data from the actual interventions implemented at the CIVIS pilot sites under the time constraints experienced for designing, delivering and iterating interventions and ICT and the resulting levels of engagement. The final deliverable therefore takes a broad definition of community energy and its aims are: to understand and assess the trial results in terms of behaviour, engagement and attitudes and risks to engagement; and to draw out the key lessons learned and recommendations for future.
A number of insights emerged from the four pilot sites in CIVIS. Comparing the time-of-use tariff trial at the Italian test-sites with other DSR trials of dynamic price signals we find a generally similar experiences and attitudes. This is interesting in terms of seeing common findings in very different contexts for demand response. At the Swedish sites, there was an appetite among MAX Cube users for peer support and knowledge-sharing which also underlines the social or community level or route to adopting new energy practices and technology. In the Swedish test sites we also had the opportunity to compare the impact of household-level and cooperative-level IT support for energy actions. The usage of the respective sections of the app, and especially the feedback from energy managers, as well as the further funding that the local funding agencies awarded to the housing cooperative app section, lead us to conclude that working with energy actions at common, cooperative (more “social”, community of practice) levels has a much larger potential than at the household level, especially in a context where the bulk of energy use (heating and hot water) is delegated to the cooperative. The housing cooperative (a legal and practical construct relevant for most of Scandinavia) informed our design decisions (lack of support for energy performance comparison between cooperatives, lack of support for learning between cooperatives, etc.). As such, the housing cooperative, augmented with the IT artefacts we have designed and implemented, presented itself as a simple and effective way of achieving the CIVIS objectives of achieving synergies between social, IT and energy networks.

The previous WP5 deliverable, D5.2 considered in some depth how ICT might be used in future to better support engagement with community energy. Although the time available was limited for incorporating these sorts of features into iterations of the ICT implemented we can, however, begin to see how the CIVIS participants’ interests suggest that these are avenues worth exploring. This gives some support to the notion that engagement can be driven not just by individuals’ pre-existing motivations (e.g., financial or environmental) but by households’ experiences and interactions once they start participating, and yields specific insights into how ICT can help support these more community-based routes to engagement.

1.3.9 WP6 - Definition of business models for an emerging social decentralized energy

General objective

The ambition for the work package of the project was to provide guidelines for deploying and upscaling social energy systems and designing the appropriate business model for the initiative. Based on current initiative’s best practices and views on how to start and develop a social energy initiative, the CIVIS energy initiatives have been plotted against a framework of maturity levels and best practices, resulting in areas of improvement and culminating into an advice on how to improve. By using the guidelines that were developed, local energy initiatives will be able to devise a new or improved business model, and also to better articulate towards their stakeholders what they need from them and why.

So, after providing a broad perspective on the environment of our test sites in year one and focusing our attention on their business models, resulting in tooling and methodology to enhance the pilot sites leadership’s understanding towards creating value, this year’s work has diverged
again, culminating the experiences of the years past, to provide what could be described as a guidebook to start or to enhance a local energy initiative – or cooperative energy initiative.

Building on the results from previous years and extensive literature research, factors to successfully start a sustainable local energy initiative have been identified, along with an overview of best practices. The CIVIS test sites have been judged for their maturity levels, and – based on a framework of ‘agents of change’, new business models have been identified.

To this purpose, we also have had several in-depth interviews with stakeholders from the Stockholm municipality and with the heads of electric consortia in Italy.

An extended abstract was written to be presented at the 1st International Conference on New Trends for Sustainable Energy, 1-3 October 2016 in Alexandria.

**Significant results (first year)**

The first deliverable, “D6.1 Description of new style business models for an emerging social energy system”, allowed us a first insight into the way social initiatives function by themselves and in relation to the energy domain (and its stakeholders). From an external point of view, having the ability to influence stakeholders these initiatives need relevant and detailed insights in order to start an effective campaign with limited resources in order to achieve their respective goals. Using a combination of analysis and method we can now provide initial findings and tooling for them to do so.

**Significant results and achievements (second year)**

During this year we have succeed in involving the leadership of our test sites; the board members that develop the strategy and vision for their respective organisation. Their response was instrumental in developing the approach that we used in this task to provide them with an insight in their current situation and how new ‘business’ could be applied to and by their organisation.

Also, the pivotal concept in our analysis, namely that of ‘value’, has now been clearly established and formalized in using the value case methodology. From the outset of this project we have sought to find a way to describe the value of a social initiative in both economic and non-economic terms and that is both meaningful and provides the stepping stones for our test sites to improve the way they go about their business.

**Significant results and achievements (third year)**

The main result of Work package 6 in its final year are the guidelines that are provided for deploying and upscaling social energy systems and designing the appropriate business model for the initiative in deliverable D6.3. These guidelines not only provide an overview of best practices and views on how to start and develop a social energy initiative in collaboration with its stakeholders (agents of change). It also presents the CIVIS maturity scheme that allows initiatives to plot themselves against a domain specific development cycle.
1.3.10 WP7 - Testing the energy performance of proposed Smart Grid / ICT installations

General objective

The main objective of WP7 was to test the effect, in terms of reduced energy use and reduced CO2 emissions, of the technology proposed within the CIVIS project, by running extensive real-life evaluation tests on the two pilot sites. The following objectives were identified:

- To measure the reduction of energy consumption and of CO2 emissions through the introduction of the CIVIS ICT platform. The energy use and CO2-emissions will be determined from detailed measurements of energy supply (electricity, fuels, district heating/cooling) and/or energy use (electricity, sanitary hot water, heating).
- To analyse the social and economic drivers for the success (or failure) of the measures. These will be determined by means of qualitative analysis. The expected outcome of the measurement is also to suggest explanations for the results, namely, the main drivers for the energy- and CO2-emission performance of the pilot sites.

Significant results and achievements (first year)

- Analysis of test sites in terms of energy, ICT and socio-economical aspects.
- Data availability investigation.
- Mapping of existing and additional sensors to achieve CIVIS objectives.

Significant results and achievements (second year)

The most significant results and achievements of the second year are the following:

- Recruitment of targeted number of users in test sites.
- Installation of sensors and actuators in test sites.
- Evaluation of baseline and historical data.
- Collection of various data streams including social data, DSO data and sensors data into the CIVIS platform.
- Inputs made into the design process for developing the ICT platform/App to be used at the CIVIS pilot sites.
- The content available in D7.2a (delivered in M24).

Significant results and achievements (third year)

During the 3rd year, the focus has been on deployment of the CIVIS platform and evaluation of measures. The app deployment was carried out in autumn of 2015 and spring 2016. The deployment of sensors was completed in the 3rd year. Evaluation of measures has been carried out as a result of Tasks 7.4 and 7.5.

- Finalization of recruitment of targeted number of users in test sites.
- Finalization of installation of sensors and actuators in test sites.
• Evaluation of data collected to determine the impact as well as assessment in terms contributing factors leading to the success/failure of measures.
• Collection of various data streams including social data, DSO data and sensors data into CIVIS platform.
• Continuation of the initiatives started by CIVIS in terms of collective energy actions in Sweden and Time of Use Signal in Italy.

1.3.11 WP8 - Dissemination, awareness and exploitation

General objective

General objectives of this work package were as follows:
• Sharing results and findings with relevant stakeholders with the most appropriate tools
• Create high level of awareness among citizens involved in pilot sites activities
• Create conditions for the future exploitation of final results

Significant results and achievements (first year):

First activities realized refer to the definition of the graphic identity and the development of tools such as logo and template. A brochure and leaflet were developed during the first months of work too. The first important milestone (and first deliverable to be submitted within this work package) was the website. Aside from these tools, two issues of the newsletter have been developed and sent to all relevant stakeholders that work and cooperate with the project’s partners. Main content of this electronic bulletin are the events and activities realized by the consortium that are presented and explained by the partners involved. With the definition of the use cases, the activities of the WP expanded also to the awareness campaign: a presentation tailored for school directors and a training guide for the teachers have been developed. This guide will offer to teachers some ideas on how to approach the themes of energy efficiency, energy saving and the CIVIS project with pupils and families.

Significant results and achievement (second year)

• Stakeholders engagement map updated.
• CIVIS website updated (9,000 hits); Facebook page updated (129 likes); YouTube channel updated (2 videos); Trentino’s Facebook page opened.
• Four local events held in Trentino; initial press release (publication on specific energy-related websites) and articles on the local Trentino newspapers “L’Adige” and “Il Trentino” (addition to the 1st year report); article on “European Energy Innovation”; Press release in view of Mid-term conference.
• CIVIS video, three brochures, one flyer, three standard presentations (2 power point, 1 prezi); third and fourth newsletter (spring and autumn 2015).
• Identification of CIVIS Exploitation Areas.
• Organization of the mid-term conference (foreseen for the next reporting period).
**Significant results and achievements (third year)**

Specific objectives of the last phase of activities related mainly to the activities carried out in the sites, results obtained and their transmission to relevant stakeholders. In this sense, 17 awareness events have been realized, two conferences organized (mid-term and final), the content of the newsletter focused on test beds deployments. Website, Facebook page and You Tube channel have been the constantly updated. General public magazines published 6 articles on the project. Promotional material such as bags and roll-ups to be used during events have been realized. The final handbook “Build your own CIVIS experience!” has been released both in printed and electronic version.

- “Stakeholder involvement plan”, Stakeholders’ map updated
- “Project website”, Website updated (3.693 hits; 7.917 downloads), Facebook page updated (149 likes)
- “Awareness campaign”, 9 local events in Italian test sites, 8 local events in Swedish test sites (for a total of 17 local events)
- “Local media relations”, 2 Articles on European Energy Innovation, 4 Articles on Platinum magazine, 2 Press release in view of Mid-term conference
- “Promotional material”, 7 new videos (184 visits to YouTube channel), 260 CIVIS bags produced and distributed among partners and among mid-term visitors, 2 rolls ups created for mid-term conference and used afterwards for local events
- “Newsletter”, Fifth newsletter - spring 2016 (219 downloads), Sixth newsletter - fall 2016
- “Exploitation plan”, Handbook “Build your own CIVIS experience” (200 hard copies; 39 downloads in one month)
- “Mid-term conference”, Mid-term conference realized (70 people audience + approx. 80 visitors of the stand, 237 downloads of the agenda)
- “Final conference”, Conference realized (30 people as audience, 181 downloads of related documents from website in one month)

**1.3.12 WP9 - Project management**

Management tasks favour the smooth operation of the project in terms of day-to-day management and interfacing with the European Commission. In particular, this is concerned with day-to-day management of the project, including the production and submission of progress reports, establishment of communication among project partners and the EC, and monitoring and correcting any deviations from the original project plan. Project Management is conducted under the scope of Work Package 9 and it is led by UNITN. The general supervision is done by Vincenzo D’Andrea and Matteo Bonifacio, supervision and operational execution by Giacomo Poderi and Valentina Chizzola. Taking care of all administrative and financial issues is done by Monica Cosi and Mirella Collini.
1.4 Potential impact and dissemination

The purpose of this section is to highlight the potential impact of the results of the CIVIS project and its main dissemination results.

1.4.1 Impact and Exploitation

The CIVIS vision was to enable social energy initiatives to achieve progress and to become more sustainable beyond their current state. The focus of CIVIS was on local energy initiatives, as these play an important role in the current energy transition and as a result have the potential to significantly change and improve the lives of their participants. For that reason, within CIVIS we have worked towards a scheme that provides guidance and insight into the development of a Local Energy Initiative. The CIVIS approach to impact creation therefore concerned the value that is being created beyond purely making money. CIVIS pursued the idea of creating value that is not only financial in nature, but specifically aimed at improving the social fabric and reaching the environmental goals as set out by the European Union. Achieving value as a social energy system can only be done in cooperation with the various stakeholders that a cooperative initiative interacts with – or the ‘agents of change’.

Various stakeholders and related projects have taken up CIVIS approaches and results, thus catalysing the project’s impact. The Municipality of Stenico expressed its interest in using the technology and the CIVIS approach during the second year of the project; thus the interest was transformed in a full enrolment within the project. During the third year, 7 CIVIS stakeholders manifested formal interest to take-up of the CIVIS conceptual approach and technology (see CIVIS D.8.1). Furthermore, new projects using the CIVIS results and technologies are being funded: in Sweden, the Swedish Energy Agency funded a project to make available the CIVIS app to all housing cooperatives in Sweden, with an initial goal of 100 housing cooperatives using the app. Moreover, the project provided a series of guidelines for deploying and upscaling social energy systems. A “new style” Business model has been created involving the leadership and the board members operating within our test sites and its strongest commitment is to integrate “values” both in their GDP/non-GDP concept. The message about the “new style” Business model is to inspire energy cooperatives and new possible initiatives to include and empower their social nature to allow for environmentally as well as socially sustainable solutions.

In addition, the following energy-related projects and initiatives, which are either already active or under review, have taken up CIVIS approaches and results: ElectriCITY (Stockholm); Brf Energi (Sweden); Energporten (Sweden); C-Cube3 (H2020); Teaming (H2020); CEIS (Italy); CEDIS (Italy).

The end users enrolment phase ended in the second year of the project, during the third year just a few new families were enrolled arriving at: 102 households in the Trentino pilot sites, with more than 300 users involved. In Stockholm pilot sites have been involved 13 housing associations, 40 households equipped with sensors, and 147 apartments individual data showed with app offered to them.
To leverage on stakeholder knowledge and experiences, CIVIS stakeholder advisory boards have been created in Italy and in Sweden. During the project, the Italian and the Swedish Stakeholder Advisory Boards (SABs) have offered expert feedback on CIVIS activities, helped in creating a network in the field of energy innovation and in disseminating CIVIS results. The Italian SAB was composed of Habitech, Trentino Network, CEIS, CEDIS, Trenta - Dolomiti Energia, Rete Energie, Energyland - ForGreen Spa, Co-Energia, La Rete, BIM del Chiese, University of Groningen, BIM Sarca. The Swedish SAB was composed of HS2020, Fortum, different housing associations/cooperatives, the Fardala Association, Fardala’s households, the City of Stockholm and the following technical experts from different KTH departments: Örjan Svane (Senior researcher in Sustainable Urban Development), Mattias Höjer (Director of the Centre for Sustainable Communication), Ivo Martinac (Head of Division of Building Services Engineer).

Along the third year the contact and involvement of the stakeholders engaged during the two fist years was maintained and a systematic approach to the identification and engagement of stakeholders in the test beds, but also at national and European level was carried out. The consortium got supporting letters from Italian stakeholders, manifesting formal interesting in the adoption and use of CIVIS results and from Sweden further funding of local funding agencies awarded to the housing cooperative app section.

**Exploitation plan**

To finalize the activities related to CIVIS Exploitation, collaborative and networking activities have been pursued. These flowed into the last iteration of D8.1 and in to the production of CIVIS Exploitation Handbook. In particular:

- Two internal surveys address to CIVIS Consortium have been conducted to refine and finalize the mapping of CIVIS asset and individual beneficiary’s exploitation strategies;
- Two working sessions with Consortium partners were organized for and run during CIVIS Plenary meetings (February 2016, Stockholm; June 2016, Delft);
- Repeated and dedicated communications (e-mail and teleconferences) with Consortium partners took place between Apr and Jul 2016, for refining the outcomes of the workshop session and the surveys;
- Engagement with local and international stakeholders was coordinated within the task and delivered through Consortium partners in order to verify stakeholders’ interest in adopting part of CIVIS asset and collect formal letters of intents/interests.

**CIVIS Handbook – “Build your own CIVIS Experience!”**

The handbook is designed to be a lightweight and easily understandable document addressed to individuals and organizations interested in exploiting CIVIS results and lesson learned. It sorts CIVIS asset (i.e. code, documentation, and tools) into a guideline for allowing others to “Implement their own CIVIS experience”.
From the content point of view, the handbook includes:

(i) an introduction; (ii) a description of platform components; (iii) a reference section for each component that guide readers on the identifications of proper material in CIVIS; (iv) a series of lessons learnt; and (v) a contact & support section.

CIVIS Exploitation Handbook (Annex E) can be used:

- By each Consortium partner, as a showcasing tool for boosting their future works and their individual knowledge & technology transfer efforts;
- By target beneficiaries as a guideline document for understanding what they can use from CIVIS asset and how they can exploit it.

The Handbook has been widely distributed at the CIVIS Final Conference and through the various distribution lists gathered as part of the Stakeholder identification and engagement activities. CIVIS SAB has been leveraged to strengthen the outreach of the document.

This allowed us to reach out for all main potential beneficiaries at the national and international level, as they include:

- Local Energy Initiatives (through SAB and Stakeholders list of Annex A);
- Academics network (through the FP7 and Horizon2020 projects mapped in Annex B);
- Other energy actors, such as energy device vendors and DSOs (through SAB and CIVIS final conference).

The Handbook is available for download in the project’s website or in print from the project’s coordinator.
1.4.2 Dissemination

In what follows, we lay out CIVIS’ dissemination activities concerning the project’s website, the CIVIS Awareness Campaign, local media relations, promotion materials and newsletters, the mid-term and final conferences, networking and synergies with other projects, published works, talks and general press and online articles.

**Project website**

The project website, created during the first year of activity, has been constantly updated, reporting the most interesting news, scientific deliverables, newsletters, exploitation plan and handbook. From August 2015 to the end of September 2016 the website had 6584 page views, with a monthly average of 549 page views. 7917 documents, project deliverables, newsletters, project results and Description of Work were downloaded from September 2015 to September 2016. Numbers that show the effort spent by the consortium to disseminate CIVIS to a broad general public.

In coherence with the technical needs expressed by partners, agreements with the webmaster to upload new documents even after the official end of the project have been officially taken. The website will be on line for the coming three years.

The official CIVIS Facebook ([http://facebook.com/civisproject](http://facebook.com/civisproject)) continued to be a more flexible and slim tool for communicating big and small events linked to the project and to energy efficiency in general. The page has reached 149 “likes”.

With regard to the activities in the Italian sites, where Italian was used as main communication language, two additional online tools were adopted for awareness and engagement around the activities of the use case: a Facebook page ([https://www.facebook.com/civisitalia](https://www.facebook.com/civisitalia)) and a website/blog ([https://progettocivis.wordpress.com/](https://progettocivis.wordpress.com/)).

**Awareness campaign - Live events**

Table 3 summarizes the Live events organized the Italian pilot site in the third year of the project. A total of five focus group and four workshops on participatory budget have been realized. Objective of the second round of focus groups organized in the Trentino test sites was to discuss three different subjects: the use of the “YouPower” app, the participatory budgeting process for the energy bonus and a general evaluation of the CIVIS project.

The 3rd focus groups heard participants express their feeling of being part of the community or being involved in the local community.

Two workshops regarding the participatory budgeting process were organized in each Italian test site. The goal of the first workshops was to show people how easy it is to present a project proposal, to make people understand that any kind of proposal is welcome and to stimulate people’s creativity in design proposals. The second workshops aimed at better explain the project proposals and to carry out discussions between CIVIS participants on the different project proposals.
Table 3 – Summary of live events in the Italian pilot site

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Where</th>
<th>Date</th>
<th>Participants</th>
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<tr>
<td>2nd focus groups</td>
<td>San Lorenzo</td>
<td>21 March 2016</td>
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<td></td>
<td>Stenico</td>
<td>21 March 2016</td>
<td>3</td>
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<td></td>
<td>Storo</td>
<td>22 March 2016</td>
<td>4</td>
</tr>
<tr>
<td>Workshops on participatory budgeting process</td>
<td>Storo</td>
<td>11 April and 25 May 2016</td>
<td>8 and 12</td>
</tr>
<tr>
<td></td>
<td>San Lorenzo</td>
<td>13 April and 27 May 2016</td>
<td>3 and 8</td>
</tr>
<tr>
<td>3rd focus groups</td>
<td>San Lorenzo</td>
<td>14 July 2016</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Storo</td>
<td>19 July 2016</td>
<td>3</td>
</tr>
</tbody>
</table>

Two different live events were organized in the third year in Sweden: a focus group in Fårdala and 7 meetings in Hammarby Sjöstad with energy stakeholders.

- Focus group in Fårdala: Five participants took part on the focus group in Fårdala in February 2016. This focus group was focussed on the MaxCube characteristics, limitations, advantages, usefulness; etc.
- Meetings with energy managers: 7 meetings were organized with different energy stakeholders during the spring of 2016. They were typically around one hour long and held at the stakeholder’s office. The housing cooperative part of the app was used to stimulate the discussion around challenges, opportunities with such an app, and suggestions for future development and use.

Local media relations

In occasion of the mid-term conference, two press releases have been done and a few articles on the local press announced the event.

During the third year of activities, CIVIS has been talked about in two magazines that have an international audience:

- In summer 2015 the European Energy Innovation magazine published a descriptive article “CIVIS: cities as drives of social change”. 70 printed copies of the magazines have been distributed during the mid-term conference (http://www.europeanenergyinnovation.eu/OnlinePublication/Summer2015/index.html#p=32)
- The next year, in the summer 2016 edition, another article has been published by the same magazine
(http://www.europeanenergyinnovation.eu/OnlinePublication/Summer2016/files/basic-html/page39.html) this time we’ve focused on a result achieved by the projects, the YouPower app. The article is, in fact, titled “You power: a social platform for participation, awareness and engagement by CIVIS project”.

- The European Energy Innovation Magazine’s website, where is possible to read all issues, is visited by 2.500 readers per month. It’s possible to state that, thanks to the on-line and the hard version of the magazine, around 20.000 people are reached.
- The 2016 summer edition of “Platinum”, a periodical magazine linked to the Italian “Il sole 24 ore” financial newspaper has published in its two editions (Italian and English) an article presenting the project in its main features: “The real meaning of socially smart”; “Il verso significato di socialmente intelligente”: http://www.platinum-online.com/luglio-2016-filippo-antonio-de-cecco-ing/ (articles can be found at page 85).
- The 2016 winter edition of the printed version of Platinum hosted (again, both in the italian and the English versions) an article focused on the results obtained by CIVIS: “Summing up the CIVIS project!” is the title of the English version; “E’ tempo di bilanci per il progetto CIVIS!” for the Italian version. “Platinum” is printed in 140.00 copies.

**Promotional material**

The YouTube channel has been populated (https://www.youtube.com/user/CIVISproject) with new videos, developed from the presentations held during the second scientific review.:

- What about the social aspect of our work?
- Might all this be transformed in something valuable?
- What is going on in our test sites in Italy?
- Let us take you into the ENERGY dimension of our project
- What has been done in the Swedish test sites
- The ICT dimension
- Here’s what CIVIS is about

The total number of visits to CIVIS YouTube channel is 184.

260 CIVIS bags have been produced and distributed among partners in occasion of the plenary meeting held in Stockholm and among the people that followed the mid-term conference in Verona and have visited the booth during the three days Smart Energy EXPO.

2 rolls ups were created for the mid-term conference’s booth and have been used afterwards for local events by partners responsible for test sites as well as during the final conference.

**Newsletter**

The fifth newsletter of the project (Spring 2016) was released on April 2016, being promoted outside the consortium and on the project’s website. This issue focuses on Swedish pilot sites.

The sixth newsletter (Fall 2016) focuses on the project results. It will also be send to the partners and uploaded on the project’s website. This last newsletter is devoted to a wrap up of the
project’s results.

**Mid-term conference**

As agreed with the entire partnership and the PO, the mid-term conference took place during this third year of activity (on October 14th, 2015). The conference has been held in the framework of the “Smart Energy Expo” (http://www.smartenergyexpo.net/convention/search/it/0/2015-10-14/0), a three days event held in Verona, Italy, entirely dedicated to energy efficiency and smart solutions linked to it. A booth dedicated to the project was kept during the three days, offering information and distributing dissemination material such as the brochures, newsletter, EEI magazine, Bags, etc.

The conference itself took place during the second day of the EXPO and has been the first public occasion during which it has been possible for CIVIS partners to:

- Share preliminary results achieved by the consortium with stakeholders locally involved
- Compare CIVIS experience with other EU projects
- Get inspiration from external stakeholders: other EU projects, policy experts, utilities, private companies, energy efficiency experiences.

Partners from Stockholm, hosted in KTH premises took part to the event through an audio-video connection. Around 35 people followed the event in Verona and approximately the same number followed from KTH.

**Final conference**

The formula adopted for the organization of the mid-term conference, that is to say, create an occasion to exchange experiences with stakeholders involved in project addressing energy efficiency, has been found very positive. Coherent with this idea, the agenda of the final conference has been designed into two parts: the first part of the day has been totally dedicated to CIVIS results while the second part hosted presentations from other EU projects and local experiences on energy efficiency.

The conference took place in Stockholm and was hosted in KTH premises. The audience (30 people) was composed mainly of professors and students involved in energy efficiency projects and of participants in other projects co-founded by the European Commission tackling the same issues. All presentations have been uploaded in the project’s website and have been downloaded more than 180 times.

**Networking and Synergies with other projects**

As also reported in the Project Annual Reports (D9.2), during the first project year we established and developed contacts with representatives of various R&D projects focused on the topics of renewable energy, Smart grid and smart city:

- Isastur R&D Department, http://www.isastur.grupoisastur.com
- URB-Grade project, http://urb-grade.eu/

The interaction with these projects was oriented towards sharing of information, networking and clustering activities.

**Published works, joint publications and talks**

14 papers have been published by Consortium partners, 3 of which written jointly by at least two partners. This data is not yet complete, because in the publication pipeline there are other 6 papers at various stage, 4 of which jointly written by more than one partner. Partners presented work related to CIVIS at 11 academic conferences in total during the three years and they were invited to address speech and keynote to 7 events.

**General press and online articles**

25 articles appeared in newspapers, magazines and blogs, reaching the goal settled by the DoW at 20 for the third year. Articles are both about the work done on pilot sites during these years and about the vision of CIVIS and the impact of the project.
1.5 Use and dissemination of foreground

1.5.1 Section A

A1: LIST OF SCIENTIFIC (PEER REVIEWED) PUBLICATIONS, STARTING WITH THE MOST IMPORTANT ONES

<table>
<thead>
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<th>NO.</th>
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<th>Main author</th>
<th>Title of the periodical or the series</th>
<th>Number, date or frequency</th>
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<th>Place of publication</th>
<th>Year of publication</th>
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<th>Is/Will open access be provided to this publication?</th>
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<td>2</td>
<td>Optimisation of the capacity and the dispatch of decentralised micro-CHP systems: a case study for the UK</td>
<td>Merkel, E., McKenna, R., Fichtner, W.</td>
<td>Applied Energy</td>
<td>140</td>
<td>Elsevier</td>
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<td>2015</td>
<td>120-134</td>
<td><a href="http://dx.doi.org/10.1016/j.apenergy.2014.11.036">http://dx.doi.org/10.1016/j.apenergy.2014.11.036</a></td>
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<td>4</td>
<td>Participatory infrastructuring of community energy</td>
<td>Andrea Capaccioli, Giacomo Poderi, Mela Bettega, Vincenzo D'Andrea</td>
<td>14th Participatory Design Conference</td>
<td>15-19 August 2016</td>
<td>ACM</td>
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<td>9-12</td>
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<td>7</td>
<td>Designing for (Hidden) Energy Responsibilities</td>
<td>Hanna Hasselqvist</td>
<td>NordiCHI ‘16 Doctoral Consortium</td>
<td>23 October 2016</td>
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<td>12</td>
<td>Towards Smart Grid User Engagement Through Social Networking</td>
<td>Yilin Huang, Sanja Scepanovic, Daniele Miorandi, Martijn Warnier and Frances Brazier</td>
<td>ICCSS International Conference on Computational Social Science</td>
<td>8-11 June 2015</td>
<td></td>
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<td>2015</td>
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<td>13</td>
<td>ICT for community energy</td>
<td>van der Weerdt C., Carmichael, R., and Palm, B</td>
<td>ICNTSE Conference, Alexandria, Egypt, October 2016</td>
<td>October 2016</td>
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## A2: List of Dissemination Activities

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<tr>
<th>Type of activities</th>
<th>Main Leader</th>
<th>Main WP</th>
<th>Title</th>
<th>Date/Period</th>
<th>Place</th>
<th>Type of audience</th>
<th>Size of audience</th>
<th>Countries addressed</th>
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<td>WP 9</td>
<td>EASST Conference: &quot;Smart Meters: boundary objects along the way of CIVIS vision implementation&quot;</td>
<td>set-14</td>
<td>Torun (PL)</td>
<td>Scientific Community (higher educ.)</td>
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<td>WP 9</td>
<td>Energy and society conference: &quot;Challenges and opportunities of action research approaches for an emerging energy paradigm&quot;</td>
<td>05/06/2014</td>
<td>Cracow</td>
<td>Scientific Community (higher educ.)</td>
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<td>Articles (popular press)</td>
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<td>WP 9</td>
<td>Article for L'Adige newspaper: &quot;CEDIS e CEIS progetto europeo. Visita agli impianti&quot;</td>
<td>30/04/2014</td>
<td>Trento</td>
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CIVIS project has received research funding from the European Union.
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<th>Type of activities</th>
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<td>Article for L'Adige newspaper: &quot;Il CEDIS per la piattaforma ICT. Studio e finanziamento europeo sui consumi ottimizzati in remoto&quot;</td>
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<td>Proceedings of the 15th European Conference on knowledge management: &quot;Communities of practice and renewable distributed energy: the CIVIS experience&quot;</td>
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<td>Type of activities</td>
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<td>Workshops (2)</td>
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<td>Green Campus hackathon</td>
<td>24-26 May 2014</td>
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<td>60</td>
<td>Finland, Sweden</td>
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<td>Article in the Seminar on Internetworking: Smart meter Big Data applications for Customer Analytics</td>
<td>Jan. 2014 / May. 2014</td>
<td>Otaniemi, Espoo</td>
<td>Scientific Community (higher educ.)</td>
<td>30</td>
<td>General</td>
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<tr>
<td>Flyers</td>
<td>(3) EF</td>
<td>WP 8</td>
<td>General flyer of the project</td>
<td>nov-13</td>
<td>Mixed audience</td>
<td>PP</td>
<td></td>
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<tr>
<td>Other</td>
<td>(3) EF</td>
<td>WP 8</td>
<td>Project logo and templates</td>
<td>dic-13</td>
<td>Mixed audience</td>
<td>PP</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Web</td>
<td>(3) EF</td>
<td>WP 8</td>
<td>Project website</td>
<td>giu-14</td>
<td>Mixed audience</td>
<td>PP</td>
<td></td>
<td><a href="http://www.civisproject.eu">www.civisproject.eu</a></td>
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<tr>
<td>Flyers</td>
<td>(3) EF</td>
<td>WP 8</td>
<td>Second flyer of the project</td>
<td>mar-14</td>
<td>Mixed audience</td>
<td>PP</td>
<td></td>
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<tr>
<td>Presentations</td>
<td>(3) EF</td>
<td>WP 8</td>
<td>Brochure for directors of schools</td>
<td>ago-14</td>
<td>Other</td>
<td>Italy</td>
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<tr>
<td>Type of activities</td>
<td>Main Leader</td>
<td>Main WP</td>
<td>Title</td>
<td>Date/Period</td>
<td>Place</td>
<td>Type of audience</td>
<td>Size of audience</td>
<td>Countries addressed</td>
<td>URL Ref (if available)</td>
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<tr>
<td>Web</td>
<td>(3) EF</td>
<td>WP 8</td>
<td>Facebook page</td>
<td>ago-14</td>
<td>Mixed audience</td>
<td>PP</td>
<td><a href="https://www.facebook.com/pages/CIVIS-project/762904637099423">https://www.facebook.com/pages/CIVIS-project/762904637099423</a></td>
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<tr>
<td>Other</td>
<td>(3) EF</td>
<td>WP 8</td>
<td>Training guide for teachers</td>
<td>sept-14</td>
<td>Other</td>
<td>Italy</td>
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<tr>
<td>Other</td>
<td>(5) IST</td>
<td>WP 8</td>
<td>Newsletter- second issue</td>
<td>ott-14</td>
<td>Mixed audience</td>
<td>PP</td>
<td>.</td>
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<tr>
<td>Other</td>
<td>(5) IST</td>
<td>WP 8</td>
<td>Dissemination of the first newsletter</td>
<td>April 2014</td>
<td>n/a</td>
<td>154 contacts, 54 energy institutions; 63 municipalities</td>
<td>Portugal</td>
<td></td>
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<tr>
<td>Web</td>
<td>(5) IST</td>
<td>WP 8</td>
<td>Development of a Portuguese website of the CIVIS Project - <a href="http://socialenergyict.ist.utl.pt/">http://socialenergyict.ist.utl.pt/</a></td>
<td>under construction</td>
<td>n/a</td>
<td>Mixed audience</td>
<td>n/a</td>
<td>Portugal</td>
<td></td>
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<tr>
<td>Workshops</td>
<td>(11) CN</td>
<td>WP 3</td>
<td>Round Table on Privacy &amp; Security Issues in Smart Grids</td>
<td>6/24/2014</td>
<td>Trento</td>
<td>Mixed audience</td>
<td>10</td>
<td>IT</td>
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<td>Conferences</td>
<td>(10) TU DELFT</td>
<td>WP 3</td>
<td>Social Networking for Smart Grid Users - A Preliminary Modeling and Simulation Study</td>
<td>9-11/04/15</td>
<td>Taipei, Taiwan</td>
<td>Scientific Community (higher educ.)</td>
<td>80</td>
<td><a href="http://www.icnsc.org/">http://www.icnsc.org/</a></td>
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<td>Conferences</td>
<td>(2) AALTO</td>
<td>WP 3</td>
<td>Towards Smart Grid User Engagement Through Social Networking</td>
<td>8-11/04/15</td>
<td>Helsinki, Finland</td>
<td>Scientific Community (higher educ.)</td>
<td>200</td>
<td><a href="http://www.iccss2015.eu/">http://www.iccss2015.eu/</a></td>
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<td>Type of activities</td>
<td>Main Leader</td>
<td>Main WP</td>
<td>Title</td>
<td>Date/Period</td>
<td>Place</td>
<td>Type of audience</td>
<td>Size of audience</td>
<td>Countries addressed</td>
<td>URL Ref (if available)</td>
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<tr>
<td>Conferences (6) KIT WP 2</td>
<td>Is there an optimum scale for energy autarky?</td>
<td>6-7/07/15 Cambridge, UK</td>
<td>Scientific Community (higher educ.)</td>
<td>100</td>
<td><a href="http://www.wholesem.ac.uk/events/annual-conference/annual-conf-15/annual-conf-15-presentations">http://www.wholesem.ac.uk/events/annual-conference/annual-conf-15/annual-conf-15-presentations</a></td>
<td></td>
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<td>Web (3) EF WP 8</td>
<td>Facebook page of the project</td>
<td></td>
<td>Mixed audience</td>
<td>200</td>
<td><a href="https://www.facebook.com/CIVISproject?ref=hl">https://www.facebook.com/CIVISproject?ref=hl</a></td>
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<td>Videos (3) EF WP 8</td>
<td>CIVIS video</td>
<td></td>
<td>Mixed audience</td>
<td>50</td>
<td><a href="https://www.youtube.com/watch?v=mWOgCPeoRMo">https://www.youtube.com/watch?v=mWOgCPeoRMo</a></td>
<td></td>
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<td>Press releases (3) EF WP 8</td>
<td>Press release on Mi-term conference</td>
<td></td>
<td>Mixed audience</td>
<td></td>
<td></td>
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<tr>
<td>Flyers (3) EF WP 8</td>
<td>Flyer for Italian test sites</td>
<td>01/11/14</td>
<td>Civil society</td>
<td></td>
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<tr>
<td>Flyers (3) EF WP 8</td>
<td>Second brochure</td>
<td>01/12/14</td>
<td>Mixed audience</td>
<td></td>
<td></td>
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<td>Flyers (3) EF WP 8</td>
<td>Third brochure- local sites (Italian and english)</td>
<td>01/01/15</td>
<td>Mixed audience</td>
<td></td>
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<tr>
<td>Presentations (3) EF WP 8</td>
<td>Three standard presentations (2 ppt and one prezi)</td>
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<td>Type of activities</td>
<td>Main Leader</td>
<td>Main WP</td>
<td>Title</td>
<td>Date/Period</td>
<td>Place</td>
<td>Type of audience</td>
<td>Size of audience</td>
<td>Countries addressed</td>
<td>URL Ref (if available)</td>
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<tr>
<td>Thesis</td>
<td>(2) AALTO</td>
<td>WP 6</td>
<td>EnergyUP -- Crowdsourced Energy Saving Social Network (I&amp;E thesis)</td>
<td>Jan-June 2015</td>
<td>Espoo, Finland</td>
<td>Scientific Community (higher educ.)</td>
<td>60 (25 participated in user study)</td>
<td>Finland</td>
<td><a href="https://aaltodoc.aalto.fi/handle/123456789/17795">https://aaltodoc.aalto.fi/handle/123456789/17795</a></td>
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<tr>
<td>Thesis</td>
<td>(2) AALTO</td>
<td>WP 3</td>
<td>Improving Energy Usage Behavior with Social Network Context</td>
<td>Jan 15- June 16</td>
<td>Espoo, Finland</td>
<td>Scientific Community (higher educ.)</td>
<td>25</td>
<td>Finland</td>
<td><a href="https://aaltodoc.aalto.fi/handle/123456789/17796">https://aaltodoc.aalto.fi/handle/123456789/17796</a></td>
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<tr>
<td>Workshops</td>
<td>(2) AALTO</td>
<td>WP 5</td>
<td>CIVIS presentation and EnergyUP user study as OSCE days Helsinki</td>
<td>13/06/15</td>
<td>Helsinki, Finland</td>
<td>Mixed audience</td>
<td>60 (25 participated in user study)</td>
<td>Finland</td>
<td><a href="https://oscedays.org/helsinki/">https://oscedays.org/helsinki/</a></td>
</tr>
<tr>
<td>Presentations</td>
<td>(2) AALTO</td>
<td>WP 6</td>
<td>Presenting EnergyUP pitch in Climate Launchpad, the largest EU cleantech startup competition: in Finish finals</td>
<td>13/06/15</td>
<td>Helsinki, Finland</td>
<td>Mixed audience</td>
<td>120</td>
<td></td>
<td><a href="http://climatelaunchpad.org/finalists/energyup/">http://climatelaunchpad.org/finalists/energyup/</a></td>
</tr>
<tr>
<td>Articles (popular press)</td>
<td>(2) AALTO</td>
<td>WP 3</td>
<td>EnergyUP mentioned in Finnish national broadcasting company YLE news</td>
<td>12/05/15</td>
<td>Finland</td>
<td>Mixed audience</td>
<td></td>
<td></td>
<td>[<a href="http://yle.fi/uutiset/12_suomalaisinnovaatiota_etsii_ratkaisuja_ilmast">http://yle.fi/uutiset/12_suomalaisinnovaatiota_etsii_ratkaisuja_ilmast</a> onmuutokseen/7977879](<a href="http://yle.fi/uutiset/12_suomalaisinnovaatiota_etsii_ratkaisuja_ilmast">http://yle.fi/uutiset/12_suomalaisinnovaatiota_etsii_ratkaisuja_ilmast</a> onmuutokseen/7977879)</td>
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<tr>
<td>Presentations</td>
<td>(7) KTH</td>
<td>WP 3</td>
<td>Presentation to Shanghai energy delegation at KTH</td>
<td>19/10/15</td>
<td>Sweden</td>
<td>Civil society</td>
<td>40</td>
<td>China</td>
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<td>Type of activities</td>
<td>Main Leader</td>
<td>Main WP</td>
<td>Title</td>
<td>Date/Period</td>
<td>Place</td>
<td>Type of audience</td>
<td>Size of audience</td>
<td>Countries addressed</td>
<td>URL Ref (if available)</td>
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<tr>
<td>Presentations</td>
<td>(7) KTH</td>
<td>WP 3</td>
<td>Open energy data summit</td>
<td>20/01/16</td>
<td>Helsingborg, Sweden</td>
<td>Other</td>
<td>50</td>
<td>Sweden</td>
<td><a href="http://hbgarena.se/event/open-energy-data-summit/">http://hbgarena.se/event/open-energy-data-summit/</a></td>
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<tr>
<td>Other</td>
<td>(7) KTH</td>
<td>WP 3</td>
<td>Metry newsletter</td>
<td>1/18/2016</td>
<td>Sweden</td>
<td>Mixed audience</td>
<td>Sweden</td>
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<tr>
<td>Thesis</td>
<td>(7) KTH</td>
<td>WP 3</td>
<td>Master’s Thesis: Eco-Visualization for Amateur Energy Work</td>
<td>28/09/16</td>
<td>Stockholm, Sweden</td>
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<tr>
<td>Presentations</td>
<td>(10) TU DELFT</td>
<td>WP 3</td>
<td>CIVIS: Cities as a driver for social change – a case study in value sensitive design</td>
<td>08/07/16</td>
<td>Monopoli, Italy</td>
<td>Scientific Community (higher educ.)</td>
<td>30</td>
<td>International</td>
<td></td>
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<tr>
<td>Conferences</td>
<td>(3) EF</td>
<td>WP 8</td>
<td>CIVIS mid-term conference</td>
<td>14/10/15</td>
<td>Verona, Italy</td>
<td>Mixed audience</td>
<td>35 (+ aprox. 80 visitors of the stand)</td>
<td>Italy</td>
<td><a href="http://www.smartenergyexpo.net/convention/search/it/0/2015-10-14/0">http://www.smartenergyexpo.net/convention/search/it/0/2015-10-14/0</a></td>
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<td>Type of activities</td>
<td>Main Leader</td>
<td>Main WP</td>
<td>Title</td>
<td>Date/Period</td>
<td>Place</td>
<td>Type of audience</td>
<td>Size of audience</td>
<td>Countries addressed</td>
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<tr>
<td>Press releases</td>
<td>(3) EF WP 8</td>
<td></td>
<td>Enel re i europee futuro sono Made in Italy (ANSA + AndKronos)</td>
<td>15/10/15</td>
<td>Verona, Italy</td>
<td>Mixed audience</td>
<td></td>
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<tr>
<td>Articles</td>
<td>(3) EF WP 8</td>
<td></td>
<td>CIVIS: Cities as drivers of social change</td>
<td>summer 2015</td>
<td>UK</td>
<td>Mixed audience</td>
<td>2.500 visitors (average clicks per-month). 20.000 people reached both with printed and web version</td>
<td>International-EU</td>
<td><a href="http://www.europeanenergyinnovation.eu/OnlinePublication/Summer2015/index.html#p=32">http://www.europeanenergyinnovation.eu/OnlinePublication/Summer2015/index.html#p=32</a></td>
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<td>Videos</td>
<td>(3) EF WP 8</td>
<td></td>
<td>CIVIS vision</td>
<td>October 2014</td>
<td>N/A</td>
<td>Mixed audience</td>
<td>46</td>
<td>International-EU</td>
<td><a href="https://www.youtube.com/watch?v=mWOgCPeoRMo">https://www.youtube.com/watch?v=mWOgCPeoRMo</a></td>
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<td>Videos</td>
<td>(3) EF WP 8</td>
<td></td>
<td>CIVIS social simulation mode</td>
<td>October 2014</td>
<td>N/A</td>
<td>Mixed audience</td>
<td>103</td>
<td>International-EU</td>
<td><a href="https://www.youtube.com/watch?v=9dgZS5eoEWik">https://www.youtube.com/watch?v=9dgZS5eoEWik</a></td>
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<td>Type of activities</td>
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<td>Main WP</td>
<td>Title</td>
<td>Date/Period</td>
<td>Place</td>
<td>Type of audience</td>
<td>Size of audience</td>
<td>Countries addressed</td>
<td>URL Ref (if available)</td>
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<td>Videos</td>
<td>(3) EF</td>
<td>WP 8</td>
<td>What about the social aspect of our work?</td>
<td>May 2016</td>
<td>N/A</td>
<td>Mixed audience</td>
<td>6</td>
<td>International-EU</td>
<td><a href="https://www.youtube.com/watch?v=6dG3ers5458&amp;list=UUE34CtM24h_vpX1QY5dE10w">https://www.youtube.com/watch?v=6dG3ers5458&amp;list=UUE34CtM24h_vpX1QY5dE10w</a></td>
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<tr>
<td>Videos</td>
<td>(3) EF</td>
<td>WP 8</td>
<td>Might all this be transformed in something valuable?</td>
<td>May 2016</td>
<td>N/A</td>
<td>Mixed audience</td>
<td>6</td>
<td>International-EU</td>
<td><a href="https://www.youtube.com/watch?v=hHRY1kkjClO&amp;index=2&amp;list=UUE34CtM24h_vpX1QY5dE10w">https://www.youtube.com/watch?v=hHRY1kkjClO&amp;index=2&amp;list=UUE34CtM24h_vpX1QY5dE10w</a></td>
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<td>Videos</td>
<td>(3) EF</td>
<td>WP 8</td>
<td>What is going on in our test sites in Italy?</td>
<td>May 2016</td>
<td>N/A</td>
<td>Mixed audience</td>
<td>6</td>
<td>International-EU</td>
<td><a href="https://www.youtube.com/watch?v=E9ak2oMW6mo&amp;index=3&amp;list=UUE34CtM24h_vpX1QY5dE10w">https://www.youtube.com/watch?v=E9ak2oMW6mo&amp;index=3&amp;list=UUE34CtM24h_vpX1QY5dE10w</a></td>
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<td>Videos</td>
<td>(3) EF</td>
<td>WP 8</td>
<td>What has been done in the Swedish test sites</td>
<td>May 2016</td>
<td>N/A</td>
<td>Mixed audience</td>
<td>4</td>
<td>International-EU</td>
<td><a href="https://www.youtube.com/watch?v=BGzgTNuXmh0&amp;index=4&amp;list=UUE34CtM24h_vpX1QY5dE10w">https://www.youtube.com/watch?v=BGzgTNuXmh0&amp;index=4&amp;list=UUE34CtM24h_vpX1QY5dE10w</a></td>
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<tr>
<td>Videos</td>
<td>(3) EF</td>
<td>WP 8</td>
<td>Let us take you into the ENERGY dimension of our project</td>
<td>May 2016</td>
<td>N/A</td>
<td>Mixed audience</td>
<td>4</td>
<td>International-EU</td>
<td><a href="https://www.youtube.com/watch?v=SK1fFDNEw6A&amp;list=UUE34CtM24h_vpX1QY5dE10w&amp;index=5">https://www.youtube.com/watch?v=SK1fFDNEw6A&amp;list=UUE34CtM24h_vpX1QY5dE10w&amp;index=5</a></td>
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<tr>
<td>Videos</td>
<td>(3) EF</td>
<td>WP 8</td>
<td>The ICT dimension</td>
<td>May 2016</td>
<td>N/A</td>
<td>Mixed audience</td>
<td>4</td>
<td>International-EU</td>
<td><a href="https://www.youtube.com/watch?v=12SOblLxda&amp;list=UUE34CtM24h_vpX1QY5dE10w">https://www.youtube.com/watch?v=12SOblLxda&amp;list=UUE34CtM24h_vpX1QY5dE10w</a></td>
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<td>Videos</td>
<td>(3) EF</td>
<td>WP 8</td>
<td>Here’s what CIVIS is about</td>
<td>May 2016</td>
<td>N/A</td>
<td>Mixed audience</td>
<td>5</td>
<td>International-EU</td>
<td><a href="https://www.youtube.com/watch?v=YabCEQPt2Yk&amp;list=UUE34CtM24h_vpX1QY5dE10w">https://www.youtube.com/watch?v=YabCEQPt2Yk&amp;list=UUE34CtM24h_vpX1QY5dE10w</a></td>
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<td>Other</td>
<td>(3) EF</td>
<td>WP 8</td>
<td>CIVIS newsletter - issue 4</td>
<td>Fall 2015</td>
<td>N/A</td>
<td>Mixed audience</td>
<td>100 printed + 371 download</td>
<td>International-EU</td>
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<td>Other</td>
<td>(3) EF</td>
<td>WP 8</td>
<td>CIVIS newsletter - issue 5</td>
<td>Spring 2016</td>
<td>N/A</td>
<td>Mixed audience</td>
<td>219 download</td>
<td>International-EU</td>
<td></td>
</tr>
<tr>
<td>Type of activities</td>
<td>Main Leader</td>
<td>Main WP</td>
<td>Title</td>
<td>Date/Period</td>
<td>Place</td>
<td>Type of audience</td>
<td>Size of audience</td>
<td>Countries addressed</td>
<td>URL Ref (if available)</td>
</tr>
<tr>
<td>--------------------</td>
<td>-------------</td>
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<td>-------</td>
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<td>-------</td>
<td>-----------------</td>
<td>-----------------</td>
<td>-------------------</td>
<td>----------------------</td>
</tr>
<tr>
<td>Other</td>
<td>(3) EF</td>
<td>WP 8</td>
<td>CIVIS newsletter-issue 6</td>
<td>Fall 2016</td>
<td>N/A</td>
<td>Mixed audience</td>
<td>N/A</td>
<td>International-EU</td>
<td></td>
</tr>
<tr>
<td>Press releases</td>
<td>(3) EF</td>
<td>WP 8</td>
<td>Il vero significato di socialmente intelligente</td>
<td>Summer 2016</td>
<td>N/A</td>
<td>Mixed audience</td>
<td>140.00 copies printed</td>
<td>Italy</td>
<td><a href="http://www.platinum-online.com/luglio-2016-filippo-antonio-de-cecco/">http://www.platinum-online.com/luglio-2016-filippo-antonio-de-cecco/</a></td>
</tr>
<tr>
<td>Press releases</td>
<td>(3) EF</td>
<td>WP 8</td>
<td>The real meaning of socially smart</td>
<td>Summer 2016</td>
<td>N/A</td>
<td>Mixed audience</td>
<td>140.00 copies printed</td>
<td>International-EU</td>
<td><a href="http://www.platinum-online.com/luglio-2016-filippo-antonio-de-cecco-ing/">http://www.platinum-online.com/luglio-2016-filippo-antonio-de-cecco-ing/</a></td>
</tr>
<tr>
<td>Press releases</td>
<td>(3) EF</td>
<td>WP 8</td>
<td>È tempo di bilanci per il progetto CIVIS!</td>
<td>Fall 2016</td>
<td>N/A</td>
<td>Mixed audience</td>
<td>140.00 copies printed</td>
<td>International-EU</td>
<td>N/A</td>
</tr>
<tr>
<td>Press releases</td>
<td>(3) EF</td>
<td>WP 8</td>
<td>It's time for a wrap-up of CIVIS project</td>
<td>Fall 2016</td>
<td>N/A</td>
<td>Mixed audience</td>
<td>140.00 copies printed</td>
<td>International-EU</td>
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<tr>
<td>Conferences</td>
<td>(3) EF</td>
<td>WP 8</td>
<td>CIVIS final conference</td>
<td>22/09/16</td>
<td>Scientific Community (higher educ.)</td>
<td>30</td>
<td>International-EU</td>
<td><a href="http://www.civisproject.eu/project/final-conference.html">http://www.civisproject.eu/project/final-conference.html</a></td>
<td></td>
</tr>
</tbody>
</table>

CIVIS project has received research funding from the European Union.
1.5.2 Section B

1.5.2.1 Part B1

No applications for patents, trademarks, registered designs, etc. have been filed in this project.

1.5.2.2 Part B2

<table>
<thead>
<tr>
<th>Type of Exploitable Foreground¹</th>
<th>Description of exploitable foreground</th>
<th>Confidential</th>
<th>Foreseen embargo date</th>
<th>Exploitable product(s) or measure(s)</th>
<th>Sector(s) of application</th>
<th>Timetable, commercial or any other use</th>
<th>Patents or other IPR exploitation (licences)</th>
<th>Owner &amp; Other Beneficiary(s) involved</th>
</tr>
</thead>
<tbody>
<tr>
<td>YouPower App</td>
<td>Open source web application</td>
<td>NO</td>
<td>NO</td>
<td>NOT APPLICABLE</td>
<td>ENERGY</td>
<td>NOT APPLICABLE</td>
<td>NO</td>
<td>TU Delft</td>
</tr>
<tr>
<td>Housing cooperative energy app</td>
<td>A web application supporting housing cooperative energy use</td>
<td>NO</td>
<td>NO</td>
<td>NOT APPLICABLE</td>
<td>ENERGY</td>
<td>NOT APPLICABLE</td>
<td>NO</td>
<td>KTH</td>
</tr>
<tr>
<td>A system for energy production forecasting based on meteorological data</td>
<td>A model for forecasting the periods in which the electric power production exceeds the consumption</td>
<td>NO</td>
<td>NO</td>
<td>NOT APPLICABLE</td>
<td>ENERGY</td>
<td>NOT APPLICABLE</td>
<td>NO</td>
<td>Create-Net/FBK</td>
</tr>
</tbody>
</table>

¹ A drop down list allows choosing the type of foreground: General advancement of knowledge, Commercial exploitation of R&D results, Exploitation of R&D results via standards, exploitation of results through EU policies, exploitation of results through (social) innovation.
<table>
<thead>
<tr>
<th>Type of Exploitable Foreground</th>
<th>Description of exploitable foreground</th>
<th>Confidential</th>
<th>Foreseen embargo date</th>
<th>Exploitable product(s) or measure(s)</th>
<th>Sector(s) of application</th>
<th>Timetable, commercial or any other use</th>
<th>Patents or other IPR exploitation (licences)</th>
<th>Owner &amp; Other Beneficiary(s) involved</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gateway for sensor data acquisition</td>
<td>Gateway for sensor data acquisition, provided with data aggregation/enrichment capabilities</td>
<td>NO</td>
<td>NO</td>
<td>NOT APPLICABLE</td>
<td>ENERGY</td>
<td>NOT APPLICABLE</td>
<td>NO</td>
<td>REPLY</td>
</tr>
<tr>
<td>Participatory Energy Budget</td>
<td>A Participatory process based on Energy Budget that connects energy awareness and social cohesion</td>
<td>NO</td>
<td>NO</td>
<td>NOT APPLICABLE</td>
<td>ENERGY</td>
<td>NOT APPLICABLE</td>
<td>NO</td>
<td>UNI TN</td>
</tr>
<tr>
<td>CIVIS Maturity Scheme</td>
<td>A tool that allows an energy related organization to understand its development potential</td>
<td>NO</td>
<td>NO</td>
<td>NOT APPLICABLE</td>
<td>ENERGY</td>
<td>NOT APPLICABLE</td>
<td>NO</td>
<td>TNO</td>
</tr>
</tbody>
</table>
Description

**Title:** YouPower App
YouPower is an open source web application designed to make people more aware of their energy consumption and encourage sustainable consumption with local communities. The community oriented design is composed of parts that link energy data to energy actions, provide comparisons at community and household levels, generate dynamic time-of-use signals, offer energy conservation suggestions, and support social sharing. The goal is to bridge people’s attitude-behavior gap in energy consumption and to facilitate the behavior change process towards more sustainable energy consumption that is implementable in people’s daily life.
Key partner, TU DELFT

**Title:** Housing cooperative energy app
The housing cooperative energy app is a web application for following up on housing cooperative energy use and actions taken to reduce energy use (and related costs). The platform facilitates energy-related knowledge exchange between and within housing cooperatives, with the aim of supporting cooperatives in decision-making processes resulting in reduced energy use or increased production of renewable energy (e.g. through PV panels).
Key partner, KTH

**Title:** A system for energy production forecasting based on meteorological data.
Solar radiation forecasts are collected for some relevant geographical areas. An estimate of the possible energy production from photovoltaic plants installed in the relevant area is produced. If a forecast for the consumption of electrical power in the same geographical area is provided, the model can be further enhanced by forecasting the periods in which the electric power production exceeds the consumption.
Key partners, Create-Net/FBK

**Title:** Gateway for sensor data acquisition, provided with data aggregation/enrichment capabilities
Sensors in a house are connected (wired or wireless) with this device (Raspberry Pi), where all sensors raw data are received, and aggregation/enrichment/transformation/storage is done before forward them to the server. A command-line interface allows to configure sensor kits. The integration of sensors deployed in the Italian pilot within CIVIS platform has been performed by the above-described gateway, developed within CIVIS WP4.
Key partner, Reply

**Title:** Participatory Energy Budget
The innovative adoption of Participatory Budget, as means for collective decision management for the allocation of resources, applied in the context of Energy. We designed, deployed and tested a Participatory Energy Budget process in the two Italian sites as a process for end-users engagement in collective energy actions (i.e. demand side management). The process linked together an
available energy fund; an energy objective that is connected to the fund; a public call for receiving proposals; and a decision making process for their evaluation.

Key partner, UniTN

**Title:** CIVIS Maturity Scheme

The CIVIS Maturity Scheme is a tool that allows a cooperative to understand its development potential and compare itself against other organisations. It provides insight into understand why similar initiatives do things differently and which approach is likely the most helpful in a specific maturity phase.

Key partner, TNO
A General Information *(completed automatically when Grant Agreement number is entered.)*

<table>
<thead>
<tr>
<th>Grant Agreement Number:</th>
<th>608774</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title of Project:</td>
<td>CIVIS</td>
</tr>
<tr>
<td>Name and Title of Coordinator:</td>
<td>Prof. Vincenzo D’Andrea</td>
</tr>
</tbody>
</table>

B Ethics

1. Did your project undergo an Ethics Review (and/or Screening)?
   - If Yes: have you described the progress of compliance with the relevant Ethics Review/Screening Requirements in the frame of the periodic/final project reports?
   
   Special Reminder: the progress of compliance with the Ethics Review/Screening Requirements should be described in the Period/Final Project Reports under the Section 3.2.2 'Work Progress and Achievements'

2. Please indicate whether your project involved any of the following issues (tick box): |

<table>
<thead>
<tr>
<th>RESEARCH ON HUMANS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Did the project involve children?</td>
<td>No</td>
</tr>
<tr>
<td>Did the project involve patients?</td>
<td>No</td>
</tr>
<tr>
<td>Did the project involve persons not able to give consent?</td>
<td>No</td>
</tr>
<tr>
<td>Did the project involve adult healthy volunteers?</td>
<td>No</td>
</tr>
<tr>
<td>Did the project involve Human genetic material?</td>
<td>No</td>
</tr>
<tr>
<td>Did the project involve Human biological samples?</td>
<td>No</td>
</tr>
<tr>
<td>Did the project involve Human data collection?</td>
<td>No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>RESEARCH ON HUMAN EMBRYO/FOETUS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Did the project involve Human Embryos?</td>
<td>No</td>
</tr>
<tr>
<td>Did the project involve Human Foetal Tissue / Cells?</td>
<td>No</td>
</tr>
<tr>
<td>Did the project involve Human Embryonic Stem Cells (hESCs)?</td>
<td>No</td>
</tr>
<tr>
<td>Did the project on human Embryonic Stem Cells involve cells in culture?</td>
<td>No</td>
</tr>
<tr>
<td>Did the project on human Embryonic Stem Cells involve the derivation of cells from Embryos?</td>
<td>No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PRIVACY</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Did the project involve processing of genetic information or personal data (eg. health, sexual lifestyle, ethnicity, political opinion, religious or philosophical conviction)?</td>
<td>No</td>
</tr>
<tr>
<td>Did the project involve tracking the location or observation of people?</td>
<td>No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>RESEARCH ON ANIMALS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Did the project involve research on animals?</td>
<td>No</td>
</tr>
<tr>
<td>Were those animals transgenic small laboratory animals?</td>
<td>No</td>
</tr>
</tbody>
</table>
- Were those animals transgenic farm animals? No
- Were those animals cloned farm animals? No
- Were those animals non-human primates? No

**Research Involving Developing Countries**
- Did the project involve the use of local resources (genetic, animal, plant etc)? No
- Was the project of benefit to local community (capacity building, access to healthcare, education etc)? No

**Dual Use**
- Research having direct military use No
- Research having the potential for terrorist abuse No

### C Workforce Statistics

3. **Workforce statistics for the project:** Please indicate in the table below the number of people who worked on the project (on a headcount basis).

<table>
<thead>
<tr>
<th>Type of Position</th>
<th>Number of Women</th>
<th>Number of Men</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scientific and Administrative Coordinators</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Work package leaders</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>Experienced researchers (i.e. PhD holders)</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>PhD Students</td>
<td>2</td>
<td>8</td>
</tr>
<tr>
<td>Other</td>
<td>8</td>
<td>11</td>
</tr>
</tbody>
</table>

4. **How many additional researchers (in companies and universities) were recruited specifically for this project?**

Of which, indicate the number of men: -
### D Gender Aspects

5. Did you carry out specific Gender Equality Actions under the project? **NO**

6. Which of the following actions did you carry out and how effective were they?

- [ ] Design and implement an equal opportunity policy
- [ ] Set targets to achieve a gender balance in the workforce
- [ ] Organise conferences and workshops on gender
- [x] Actions to improve work-life balance
- [ ] Other: ___________________________

<table>
<thead>
<tr>
<th>Not at all effective</th>
<th>Very effective</th>
</tr>
</thead>
<tbody>
<tr>
<td>○ ○ ○ ○ ○</td>
<td>○ ○ ○ ○ ○</td>
</tr>
</tbody>
</table>

7. Was there a gender dimension associated with the research content – i.e. wherever people were the focus of the research as, for example, consumers, users, patients or in trials, was the issue of gender considered and addressed?

- [x] Yes - please specify
  - See Deliverable 5.3.

- [ ] No

### E Synergies with Science Education

8. Did your project involve working with students and/or school pupils (e.g. open days, participation in science festivals and events, prizes/competitions or joint projects)?

- [x] Yes - please specify (3 hackathon CIVIS)

- [ ] No

9. Did the project generate any science education material (e.g. kits, websites, explanatory booklets, DVDs)?

- [x] Yes - please specify (Brochure for managers and teachers of Trentino schools)

- [ ] No

### F Interdisciplinarity

10. Which disciplines (see list below) are involved in your project?

- [x] Main discipline\(^2\): 2.2
- [x] Associated discipline\(^2\): 1.1

- [ ] Associated discipline\(^2\): 5.4

### G Engaging with Civil society and policy makers

\(^2\) Insert number from list below (Frascati Manual).
### 11a Did your project engage with societal actors beyond the research community?  
(if 'No', go to Question 14)

<table>
<thead>
<tr>
<th></th>
<th>X</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

### 11b If yes, did you engage with citizens (citizens' panels / juries) or organised civil society (NGOs, patients' groups etc.)?

<table>
<thead>
<tr>
<th></th>
<th>No</th>
<th>Yes - in determining what research should be performed</th>
<th>Yes - in implementing the research</th>
<th>Yes, in communicating /disseminating / using the results of the project</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

### 11c In doing so, did your project involve actors whose role is mainly to organise the dialogue with citizens and organised civil society (e.g. professional mediator; communication company, science museums)?

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

### 12. Did you engage with government / public bodies or policy makers (including international organisations)

<table>
<thead>
<tr>
<th></th>
<th>No</th>
<th>Yes - in framing the research agenda</th>
<th>Yes - in implementing the research agenda</th>
<th>Yes, in communicating /disseminating / using the results of the project</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

### 13a Will the project generate outputs (expertise or scientific advice) which could be used by policy makers?

<table>
<thead>
<tr>
<th></th>
<th>Yes – as a <strong>primary</strong> objective (please indicate areas below - multiple answers possible)</th>
<th>Yes – as a <strong>secondary</strong> objective (please indicate areas below - multiple answer possible)</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

### 13b If Yes, in which fields?

- Agriculture
- Audiovisual and Media
- Budget
- Competition
- X Consumers
- Culture
- Customs
- Development Economic and Monetary Affairs
- Education, Training, Youth
- Employment and Social Affairs

- X Energy
- X Enterprise
- Environment
- External Relations
- External Trade
- Fisheries and Maritime Affairs
- Food Safety
- Foreign and Security Policy
- Fraud
- Humanitarian aid

- Human rights
- Information Society
- Institutional affairs
- Internal Market
- Justice, freedom and security
- Public Health
- X Internal Market
- X Research and Innovation
- Space
- Taxation
- Transport
13c  If Yes, at which level?

- [X] Local / regional levels
- [ ] National level
- [ ] European level
- [ ] International level

**H  Use and dissemination**

14. How many Articles were published/accepted for publication in peer-reviewed journals? 14

To how many of these is open access\(^3\) provided?

- How many of these are published in open access journals? 2
- How many of these are published in open repositories? 0

To how many of these is open access not provided? 12

Please check all applicable reasons for not providing open access:

- [X] publisher’s licensing agreement would not permit publishing in a repository
- [ ] no suitable repository available
- [ ] no suitable open access journal available
- [X] no funds available to publish in an open access journal
- [X] lack of time and resources
- [ ] lack of information on open access
- [ ] other: ……………

15. How many new patent applications (‘priority filings’) have been made? 0

("Technologically unique": multiple applications for the same invention in different jurisdictions should be counted as just one application of grant).

16. Indicate how many of the following Intellectual Property Rights were applied for (give number in each box).

<table>
<thead>
<tr>
<th>Intellectual Property Rights</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trademark</td>
<td>0</td>
</tr>
<tr>
<td>Registered design</td>
<td>0</td>
</tr>
<tr>
<td>Other</td>
<td>0</td>
</tr>
</tbody>
</table>

17. How many spin-off companies were created / are planned as a direct result of the project? 0

Indicate the approximate number of additional jobs in these companies:

18. Please indicate whether your project has a potential impact on employment, in comparison with the situation before your project:

---

\(^3\) Open Access is defined as free of charge access for anyone via Internet.

\(^4\) For instance: classification for security project.
19. For your project partnership please estimate the employment effect resulting directly from your participation in Full Time Equivalent (FTE = one person working fulltime for a year) jobs:

- Increase in employment, or
- In small & medium-sized enterprises
- Decrease in employment, or
- In large companies
- Difficult to estimate / not possible to quantify
- None of the above / not relevant to the project

Indicate figure: X

20. As part of the project, were any of the beneficiaries professionals in communication or media relations?
- Yes
- No

21. As part of the project, have any beneficiaries received professional media / communication training / advice to improve communication with the general public?
- Yes
- No

22. Which of the following have been used to communicate information about your project to the general public, or have resulted from your project?

- Press Release
- Coverage in specialist press
- Media briefing
- Coverage in general (non-specialist) press
- TV coverage / report
- Coverage in national press
- Radio coverage / report
- Coverage in international press
- Brochures /posters / flyers
- Website for the general public / internet
- DVD /Film /Multimedia
- Event targeting general public (festival, conference, exhibition, science café)

23. In which languages are the information products for the general public produced?

- Language of the coordinator
- Other language(s)
- English

---


**FIELDS OF SCIENCE AND TECHNOLOGY**

1. **Natural Sciences**

1.1 Mathematics and computer sciences [mathematics and other allied fields: computer sciences and other allied subjects (software development only; hardware development should be classified in the engineering fields)]
1.2 Physical sciences (astronomy and space sciences, physics and other allied subjects)
1.3 Chemical sciences (chemistry, other allied subjects)
1.4 Earth and related environmental sciences (geology, geophysics, mineralogy, physical geography and other geosciences, meteorology and other atmospheric sciences including climatic research, oceanography, vulcanology, palaeoecology, other allied sciences)
1.5 Biological sciences (biology, botany, bacteriology, microbiology, zoology, entomology, genetics, biochemistry, biophysics, other allied sciences, excluding clinical and veterinary sciences)

2 ENGINEERING AND TECHNOLOGY
2.1 Civil engineering (architecture engineering, building science and engineering, construction engineering, municipal and structural engineering and other allied subjects)
2.2 Electrical engineering, electronics [electrical engineering, electronics, communication engineering and systems, computer engineering (hardware only) and other allied subjects]
2.3. Other engineering sciences (such as chemical, aeronautical and space, mechanical, metallurgical and materials engineering, and their specialised subdivisions; forest products; applied sciences such as geodesy, industrial chemistry, etc.; the science and technology of food production; specialised technologies of interdisciplinary fields, e.g. systems analysis, metallurgy, mining, textile technology and other applied subjects)

3 MEDICAL SCIENCES
3.1 Basic medicine (anatomy, cytology, physiology, genetics, pharmacy, pharmacology, toxicology, immunology and immunohaematology, clinical chemistry, clinical microbiology, pathology)
3.2 Clinical medicine (anaesthesiology, paediatrics, obstetrics and gynaecology, internal medicine, surgery, dentistry, neurology, psychiatry, radiology, therapeutics, otorhinolaryngology, ophthalmology)
3.3 Health sciences (public health services, social medicine, hygiene, nursing, epidemiology)

4 AGRICULTURAL SCIENCES
4.1 Agriculture, forestry, fisheries and allied sciences (agronomy, animal husbandry, fisheries, forestry, horticulture, other allied subjects)
4.2 Veterinary medicine

5 SOCIAL SCIENCES
5.1 Psychology
5.2 Economics
5.3 Educational sciences (education and training and other allied subjects)
5.4 Other social sciences [anthropology (social and cultural) and ethnology, demography, geography (human, economic and social), town and country planning, management, law, linguistics, political sciences, sociology, organisation and methods, miscellaneous social sciences and interdisciplinary, methodological and historical SIT activities relating to subjects in this group. Physical anthropology, physical geography and psychophysiology should normally be classified with the natural sciences].

6 HUMANITIES
6.1 History (history, prehistory and history, together with auxiliary historical disciplines such as archaeology, numismatics, palaeography, genealogy, etc.)
6.2 Languages and literature (ancient and modern)
6.3 Other humanities [philosophy (including the history of science and technology) arts, history of art, art criticism, painting, sculpture, musicology, dramatic art excluding artistic "research" of any kind, religion, theology, other fields and subjects pertaining to the humanities, methodological, historical and other SIT activities relating to the subjects in this group]