ENCOURAGE

Embedded iNtelligent COntrols for bUildings with Renewable generAtion and storaGE

Grant Agreement No.: 269354

D7.2 – Target, cluster and requirement analysis

Document Number	D7.2
Document Title	Target, cluster, and requirement analysis
Version	1.0
Status	Final
Work Package	WP7
Deliverable Type	Report
Contractual Date of Delivery	M15 – 30/09/2012
Actual Date of Delivery	12/10/2012
Responsible Unit	ATOS
Contributors	ESVAL, ENEL
Keyword List	Social Network, Community, Collaboration
Dissemination level	PU

Amendment History

Version	Date	Author (Unit)	Description
0.1	01/08/2012	David (Atos)	Draft
0.2	15/08/2012	Miquel (ESVAL)	Improved version
0.3	01/09/2012	David, Maarten (ATOS)	New version
0.4	05/09/2012	Marcel, Miquel(ESVAL)	New version
1.0	10/10/2012	ATOS	Final version

Executive Summary

This document wants to focus the definition, development and evaluation of a scenario which addresses “Energy Efficient District/Community”.

This scenario supports community acceptance and cluster analysis. Social networks will play a key role in promoting acceptance and participation.

Table of Contents

List of Figures

List of Tables

1. Introduction

Social Networking plays a key role in the explosion of the user generated content in the internet in the last years. Social Networking has given the users the chance to connect and socialize with people from all over the world. Unlike the legacy Internet, which is mainly structured around content and user terminals, current Social Networking are mainly organized around communities of users. These communities are structured by trust relationships based on user's social relations, profiles, interests, activities and physical locations. New trends in social networking include the use of sensors for assisting and automating the basic applications of social networking and the user's actions. The increased complexity of operation necessitates the employments of the so called "smart objects", which can leverage the functionality of social networks.

Smart functionality is aiming to meet the changing, additional or increasing demands on the internet infrastructure. The architecture of Future Internet is envisaged to be smart in terms of self-configuration, self-management and self-adaption of the infrastructure and the usage of smart objects for advanced functionalities. An example of a smart functional component of Future Internet is the context-awareness of smart objects like sensors and sensors networks. Smart objects are small devices that interact with the physical world (by obtaining information from their sensors and actuating accordingly with their actuators) and communicate with other smart objects and other devices forming smart ecosystems that are emerging trends for future environments and applications.

By combining online social networks and smart objects, applications can provide an extension of social activities through smart objects, as the activity of the users is monitored by the smart objects and translated into information, which can be used automatically in the online social network.

Thus, there is a need for a more distributed dynamic architecture of future social networks, where the users will be able to form on the fly social communities and have more control over the information they share.

This is a new idea of social networking, where humans will not only be part of human communities, but also participate in object communities, where the smart objects will communicate and assist the user's activities in everyday life.

2. Social Collaboration Tool

A Social Collaboration Tool is a category of business software that adds broad social networking capabilities to complex processes. The goal of a collaboration tool is to foster innovation by incorporating knowledge management into activity processes so users can share information and solve or improve the resolution of problems more efficiently.

A successful collaboration tools need to have certain attributes - they need to be easily accessible and easy to use, they need to be built for integration and they need to come with a common set of functions that support team collaboration, issue tracking and messaging.

The ENCOURAGE platform will be tested in one the proposed scenarios with the aim to address user awareness of energy consumption. In order to improve the consciousness of users of buildings and facilities, collaboration tool works as a vehicle to make the interchange of communication easier. This communication interchange is fed from experiences, user habits, possible consuming agreements and better deals of users that share and exploit infrastructures.

Different open source community platforms have been analysed.

2.1. Pinax

http://pinaxproject.com

Pinax is an MIT-licensed, open-source platform built on the Django Web Framework.

By integrating numerous reusable Django apps and providing starter projects and infrastructure tools, Pinax takes care of the things that many sites have in common so you can focus on what makes your site different.

Pinax is also working on a number of editions tailored to event management, learning management, software project management and more.

Pinax License
Copyright (c) 2008-2011 James Tauber and contributors.

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the “Software”), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so.

2.2. ELGG

ELGG is an open source social networking engine that provides a robust framework on which to build all kinds of social environments, from a campus wide social network for a university, school or college or an internal collaborative platform for an organization through to a brand-building communications tool for a company and its clients.

ELGG is a mature social networking framework which offers:

- advanced user management and administration
- social networking
- cross-site tagging
- powerful access control lists
- internationalisation support
- multiple view support (e.g. cell phones, iPhone)
- an advanced templating engine
- a widget framework and more.

Its plugin based system enables adding new features easily from a plugins database or creating your own.

ELGG is built with PHP / MySQL and comes with a **JSON API**.

Highlighted features

Powerful Data Model
ELGG provides a powerful data model making the creation of different entities simple, yet flexible.

Activity Streams
The granular activity stream API ensures plugins that can push the required content to the users.

Plugin API
Use ELGG's powerful plugin API to build and add required features.

User Management
ELGG handles user management and relationship requirements.

Access controls
All objects in ELGG can have an access control level applied making granular access permissions possible.

Web Services API
Expose functionality through the REST API by building a plugin and then either publish the API for other developers to build clients or provide your own.

License
ELGG is free to download and use. It is dual licensed under the terms of the GNU General Public License v2 as published by the Free Software Foundation and the MIT License.

Requirements
ELGG runs on a combination of the Apache web server, MySQL database system and the PHP interpreted scripting language.

There are some extra configuration requirements:

The Apache web server needs to be installed with the following modules:

- mod_rewrite
- PHP 5
- MySQL 5+ is needed for data storage
- PHP 5.2+ needs to be installed as an Apache module (not in CGI mode or safe mode) with the following libraries:
  - GD and Freetype (for graphics processing, e.g. user icon rescaling and Captcha)
  - JSON (for API functionality)
  - XML (not installed/compiled by default on all systems)
  - Multibyte String support (for internationalisation)

It is recommended that you increase the memory available to PHP threads beyond the standard 8 or 12M, and increase the maximum uploaded file size (which defaults to 2M). By default, these settings have been set for you in the .htaccess file in the base ELGG directory.

2.3. Anahita® Framework

Anahita is RAD, SAASY, and SOCIAL.

- **RAD**: A rapid application development framework for building solutions that handle complex scenarios in a simple and logical fashion.
- **SAASY**: A solution for developing software as service businesses.
- **SOCIAL**: Specialized API for developing custom social networking apps.

The Nodes+Graphs+Stories Architecture
In Anahita everything and everybody are represented as nodes (people, groups, events, photos, topics, etc.) and relationships as edges (graphs). Stories are the smallest unit of information that propagate around on the network of interconnect nodes and edges (the social network).

Nodes can be basic or become more sophisticated once behaviours are added to them. The Anahita framework provides a comprehensive list of behaviours which can be added to the nodes. For example (Followable, Administerable, commentable, voteable, privateable, etc.)

Some of these nodes have identities and stories to tell. They are called *Actors* or *Actor nodes*. People, groups (collection of people), events, organizations, and AI bots are different examples of actors. An actor has at least a name, description, avatar, and a unique story feed. An actor is visualized using an actor profile. An actor profile can be extended by different types of social applications such as topics, photos, blogs, pages, etc. When one of these apps is installed on Anahita (for example the Photos app), it can be made available to different types of actors (people and groups for example) and by doing that instances of the social app becomes available within those actor profiles. (all people and group profiles have an instance of Photos app within their profiles.)

Another type of node that is commonly used within Anahita is the *Medium node*. Photos, topics, blogs, and pages are different examples of medium nodes. Some behaviour is associated with the medium nodes. For example: they are commentable, likable, and privatable (have privacy settings). Medium nodes are owned by actors. A medium node may have at least one or multiple owners.

Stories are the smallest unit of information that actors use to exchange messages, news, and information with each other. When people follow each other or other actors (groups, events, etc.) they are basically subscribing to their story feeds, in which case the actors that are being followed are called *leaders*.

Edges define the relationships among the nodes. Whether this relationship is about the social graph (people following each other, groups, events) or defining admins for a group or subscribing to a medium node, they are all defined and maintained by the edges. These relationships are called the *Graphs*.

Lead, Follow, Mutual (LFM) Social Graph
Anahita® uses one of the most flexible social graphing models on the web today which is called the Lead, Follow, Mutual or LFM.

In this model, rather than enforcing people to either be mutually friends or completely disconnected, person A can subscribe to the story feed of person B by following person B. In this case person A is the *Follower* and person B is the *Leader*. Person B may or may not reciprocate the relationship and follow person A back. If person B does follow back, then both people are mutually connected and subscribed to each other's stories.

Privacy Management
Anahita® privacy settings are based on its social graphing model. If an actor can only be followed, then the following privacy options are available on every medium owned by that actor:

1. **Public:** unregistered people can view the node.
2. **Registered Members:** all registered people can view the node.
3. **Followers:** The group followers and admins can view the node.
4. **Administrators** only the group admins can view the node.

If an actor both leadable and followable (a person) then the following privacy options are available on every medium owned by that actor:

1. **Public:** unregistered people can view the node.
2. **Registered Members:** all registered people can view the node.
3. **Followers:** followers, leaders, mutual, and owner/admin can view the node.
4. **Leaders:** leaders, mutuals, and owner/admin can view the node.
5. **Mutuals:** mutually connected and owner/admins can view the node.
6. **Myself Only:** only the owner/admin can see the node.

Integration with Amazon S3 Web Services
The storage API in Anahita allows you to easily integrate with Amazon S3 services. This will benefit you in many ways, for example:

- You will get a lot of inexpensive storage room for uploaded files (avatars, photos, documents, packages).
- You can migrate your social network to a different server without having to worry about migrating all of the files. Anywhere that you go, you can always point your social network to the same storage.

100% Open Source
Anahita® Framework is developed by Anahitapolis.com and distributed under the GPL3 license.

2.4. XOOPS

XOOPS is a web application platform written in PHP for the MySQL database. Its object orientation makes it an ideal tool for developing small or large community websites, intra company and corporate portals, weblogs and much more.

The Project websites are:

- Project development: http://sourceforge.net/projects/xoops
- Project and community support: http://www.xoops.org
- Third-party development support: http://dev.xoops.org

XOOPS is released under the terms of the GNU General Public License (GPL) and is free to use and modify. It is free to redistribute as long as you abide by the distribution terms of the GPL.

What XOOPS stands for
XOOPS is an acronym of eXtensible Object Oriented Portal System. Though started as a portal system, XOOPS is in fact striving steadily on the track of Content Management System. It can serve as a web framework for use by small, medium and large sites.

A site XOOPS can be used as a personal weblog or journal. For this purpose, you can do a standard install, and use its News module only. For a medium site, you can use modules like News, Forum, Download, Web Links etc. to form a community to interact with your members and visitors. For a large site as an enterprise one, you can develop your own modules such as eShop, and use XOOP's uniform user management system to seamlessly integrate your modules with the whole system.

Key features of XOOPS

Database-driven

XOOPS uses a relational database (currently MySQL) to store data required for running a web-based content management system.

Fully Modularized

Modules can be installed/uninstalled/activated/deactivated with a click using the XOOPS module administration system.

Personalization

Registered users can edit their profiles, select site themes, upload custom avatars, and much more.

User Management

The ability to search for users by various criteria, send email and private messages to users through a template-based messaging system.

Supported World-wide

XOOPS was created and is maintained by a team of several hard-working volunteers working from all over the world. The XOOPS community has more than dozen official support sites around the world for support of non-English speaking users.

Multi-byte Language Support

Fully supports multi-byte languages, including Japanese, Simplified and Traditional Chinese, Korean, etc.

Versatile Group Permissions System

Powerful and user-friendly permissions system which enables administrators to set permissions by group.

Theme-based skinnable interface

XOOPS is driven by a powerful theme system. Both admins and users can change the look of the entire web site with just a click of a mouse. There are also several themes available for download.

2.5. BuddyPress

http://buddypress.org

BuddyPress was conceived in 2008 while working to add social networking features to a WordPress MU powered site. The first official stable release was in May 2009. The platform has grown and morphed considerably since then, into more dynamic, easy and extensible package.

Just like its parent project WordPress, BuddyPress is a completely open source endeavour. Everything from the core code, to the documentation, themes and plugin extensions are all built by the BuddyPress community. This means anyone can help the project by contributing their time and knowledge.

Possible uses

- A campus wide social network for your university, school or college.
- An internal communication tool for your company.
- A niche social network for your interest topic.
- A focused social network for your new product.

If you're using BuddyPress in a unique or interesting way, be sure to let people know on the forums. We're always interested.

BuddyPress is not "all or nothing"

BuddyPress provides a range of features that work right out of the box. However, you might decide that you only want to make use of a couple of features to start with. This is really simple using BuddyPress as you can turn off the features you don't want with a click of a button. When you disable features, your site's theme will auto adjust, showing only the menu items, pages and buttons for the features you have enabled.

2.6. Mahara

https://mahara.org/

What makes Mahara different from other ePortfolio systems is that you control which items and what information (Artefacts) within your portfolio other users see.

In order to facilitate this access control, all Artefacts you wish to show to other users need to be bundled up and placed into one area. Within Mahara this compilation of selected Artefacts is called a View.

You can have as many Views as you like, each with a different collection of Artefacts, and intended purpose and audience. Your audience, or the people you wish to give access to your View, can be added as individuals or as a member of a Group or Community.

ePortfolio owners create Views using a 4 step process and Views have the following features:

- ePortfolio owners can receive public or private feedback on their View and Artefacts within that View.
- Users accessing a View can report any objectionable material directly to the Site Administrator.
- Users can add Views and Artefacts within a View to their Watch list and receive automated notifications of any changes or updates.
- ePortfolio owners can Submit a View for Assessment by a tutor or teacher allowing for a snapshot of the View and associated Artefacts on a certain date.

Other Features

File Repository
Mahara includes a file repository which allows users to:

- Create folder and sub folders structures
- Upload multiple files quickly and efficiently
- Give each file a Name and Description
- Manage their file allocation Quota
- When uploading a file users must agree to a configurable Copyright disclaimer.
- Can extract .zip, .tar.gz and .tar.bz2 from within the files area

Blogs
A blogging tool is provided in Mahara, where blogs and blog postings are considered Artefacts and may be added to a View.

The blogging tool allows users to:

- Create blog posts using a WYSIWYG editor
- Attach files to posts

- Embed images into postings
- Configure whether or not Comments may be received on their blog
- Create draft postings for later publishing

Social Networking
Mahara provides a social networking facility where users can create and maintain a list of Friends within the system. ePortfolio owners choose whether other users can add them to their Friends list automatically or by request and approval.

An ePortfolio owner's Friends lists show those Views to which they have been assigned access.

Resumé Builder
Mahara includes a resumé builder which allows users to create digital CV's by entering information into a variety of optional fields including:

- Contact and personal information
- Employment and education history
- Certifications, accreditations and awards
- Books and publications, professional memberships
- Personal, academic and work skills and
- Personal, academic and career goals

Profile Information
Within Mahara users are able to share details through a variety of optional profile information fields including:

- Preferred Name
- Student ID
- Postal address and contact phone numbers
- Skype, MSN, Yahoo & Jabber name
- Introduction
- Profile Icons images

Administration
Administrators are able to customise Mahara via a number of configuration settings which include:

- Language packages and themes
- Virus protocol
- Session and account lifetimes
- Authentication methods
- Institution setup
- Core page editor
- Main Menu editor

In addition with the Modular plugin structure of Mahara, Artefact and Block types may be configured, disabled or enabled, according to the organisation's requirements.

Interface with Moodle
Mahara provides a single-sign on capability that allows users, at the option of the administrator, to be automatically logged in to both their Mahara and Moodle accounts by providing a username and password at only one of these sites.

The user can sign on at Mahara, and click on a link to her Moodle account, or sign on at Moodle, and click on a link to her Mahara account.

The single-sign-on feature runs over an encrypted transport, and the user's passwords do not have to be shared between sites.

This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit.

Scalability
Mahara has been designed as a web application with a plug-in architecture. This means it is possible to scale the application up by separating hardware for search, database, file storage and web servers. It is also possible to replicate each of these operational components to further scale the system upwards. In addition Mahara is designed to:

- be load balanced across several web servers
- have a share file data from a centralised file server
- and have a separate database server.

This hosting set-up has proven scalability for similar systems like Moodle.

Security

- Mahara automatically detects system settings that a pose security threat.
- Session key handling code has been tightly integrated with the core form/request APIs.
- Provides database abstraction that prevents any database injection attacks and input validation that prevents script injection attacks.
- User authentication can be tied to external systems such as student management systems or other databases such as their Student ID number.

Interoperability

- Mahara includes an Import/Export system with Leap2A support, and static HTML export.
- Users can place their views under any of the Creative Commons licenses.
- Mahara is built using PHP web scripting language and leverages PHP5's OO features.
- All plug-ins follow a consistent structure and inherit from a common base class (core functions of plug-ins are implemented once)
- Mahara currently supports plug-ins for Artefacts, Authentication and Search. Therefore interoperating with an existing product simply requires the development of a plug-in.

2.7. LovdbyLess

http://lovdbyless.com

Open Source Social Network
Lovd offers a *free open source social network platform*.

Built with Ruby on Rails, Lovd is a social networking solution that has everything you need to build your community.

Current Features

- Follow a user, mutual following is friending.
- User-to-User Messaging
- Profile Comments
- User Blogs with Comments
- Photo Gallery with Captions
- Site Search for Friends
- Profile Bio and Information
- User Dashboard (Recent Activity of Friends)
- Emailed Activity
- Flickr Integration
- YouTube Integration

Ruby on Rails, Open Source
Rails are a full-stack framework for developing database-backed web applications according to the Model-View-Control pattern. From the Ajax in the view, to the request and response in the controller, to the domain model wrapping the database, Rails gives you a pure-Ruby development environment. To go live, all you need to add is a database and a web server.

Why LovdByLess was created?
Along with having our own products, we also develop websites for other companies. Last year we had more requests for a "social network that also does" than for anything else. Most of these projects were crippled with a budget so small that they would never be able to afford a well programmed site that meets their goals. So we said we should just build an open source social network platform and give it away. While we don't believe that the world needs another social network, we do believe that most sites can benefit from some sort of social interaction, software is about communication after all. Now everyone has a social networking platform they can write their application on without worrying about the details. We just want to help people get off on the right foot. We wrote LovdByLess for you.

2.8. Pligg

http://pligg.com/

The Social Publishing CMS
Pligg is an open source CMS that can be downloaded and used for free. Pligg CMS provides *social publishing* software that encourages visitors to register on your website so that they can submit content and connect with other users.

Build an Online Community
Pligg was created as a *social networking* CMS. Pligg CMS was designed to manage a site with an unlimited number of authors. All of these registered users are in control of the website's content. It is a user driven CMS that relies on independent authors' content and participation to manage news articles.

Pligg started as a simple CMS to let users submit and vote on news articles, and that's still what they do best. Vote on stories that interest you and articles that receive enough votes will appear on the homepage of your Pligg site. Pligg offers a 5 star method for voting or the more traditional numbered voting as seen on sites like Digg, Mixx, or Reddit.

Community Features

Groups
Groups allow users to share articles with other members who share a common interest in a topic. Join a group to submit topical articles that other members would be interested in. Some groups may require membership approval before you become a member.

Private Messaging
A social network site isn't very social without the ability to communicate with each other. We included a private messaging module with Pligg, so that you can send your friends a message that they can respond to.

Advanced Comment System
Not only can you comment on articles, but you can rate comments posted by other users. This affects the way that the comments are displayed, putting higher quality comments on top where they belong.

User Profiles
Each user that signs up on a Pligg site gets their own profile page where they can change their settings, send personal messages, add an avatar, make friends and other great features.

Customizing Pligg

Module System
Add additional functionality to your Pligg site without having to alter the Pligg code. There is already a large library of modules to choose from that will greatly enhance your Pligg site. Check out the free modules by creating a forum account.

Smarty Templates
We use the Smarty template system to keep our code separate from the design. This makes updating your site to the latest version of Pligg easier, and designing new templates a breeze. View free templates listed on the forum.

Upgrades
Upgrades are a snap thanks to our module and templating systems. Since you don't need to edit any of the "core" files, the upgrade process is simple and fast.

More Features

RSS Feeds
It is possible to use RSS feeds to follow the latest news from your favourite sites. You can subscribe to a user's voting trends, the front page, upcoming page and categories.

SEO Enhanced
We've done our best to help drive more traffic to your site by being as search engine friendly as possible. Our SEO methods will help get your site indexed faster and more often.

Multiple Languages
Users choose an installation language during the first step of creating a Pligg site. Become a translator and have your language added to the list by joining the Pligg Translator Group.

2.9. KickApps

http://www.kitd.com

KickApps was acquired by KIT digital in January of 2011 and although the name and branding have changed, the quality of the social platform and the services provided hasn't. You will still have the same functionality and features that KickApps has provided in the past.

What can KIT digital do for you?
For more than 7 years, KIT digital has provided broadcasters, media companies, enterprises and agencies with end to end multi-screen video technology. Now, with the amazing social capabilities of the KIT Social Platform added in, KIT digital has the premier platform for enabling media

companies and marketers to engage audiences across online, mobile, and social platforms through interactive video experiences.

Related KIT digital capabilities

Social Features
Interact with your audience and manage a virtually unlimited set of integrated social experiences for websites and connected devices, including custom forums, social sites, widgets, contests, and Facebook pages and apps.

Online Video Experiences
Build community, drive consumer engagement, and captivate audiences with broadcast-grade, live and on-demand video experiences.

Player Management
Create custom apps and players with unprecedented speed and flexibility using the KIT OSMF App Studio. KIT players are designed and built for delivery to any screen and support Flash, HTML5, and Silverlight.

Integration
The platform architecture was designed with the flexibility and control to be easily extended through the addition of new, discrete components, as well as integration with third-party solutions.

Strategic Consulting
With the non-stop innovation in the video industry, it's sometimes hard to know where to start. Our Strategic Consulting team can help by providing expert guidance on your brand's approach to video, social media, and any other component of the interactive channel.

Social Publishing
Socially enable your video experiences to drive deeper engagement and community around your content.

2.10. Mixxt

http://www.mixxt.com/

Being administrator of a Community, you can configure it as "private" and only accessible via the direct internet address. By clicking the admin tab you reach the privacy settings of your network, where you can configure the network's and its members' visibility. Among others, you can specify who may join the network. Creating a private Community, you decide between "everybody I

approve of" and "only invited people". Thus you easily maintain an overview and control on the circle of your members.

For private networks you may consider which network pages should be visible for non-members. When dealing with confidential content, just let them see the main page or even a neutral sign-in page. In addition, you can exclude your network from being scanned and indexed by search engines. You specify these matters when setting up a Community. Considering the privacy of your members, you cannot turn a "private" network into "public" yourself.

Features
By default, mixxt offers the following features for free:

Standard features
- Choose a design or create your own
- Change the menu management
- Member administration
- Members' profiles
- MyPage
- Automated welcome messages
- Public or private networks
- Single sign on for all networks
- Private message centre
- Adjustable privacy settings

Optional features
- Discussion forum
- Wiki (text administration)
- Event module and calendar
- Photo sharing
- Uploading files
- Embed videos
- Life stream / activities
- Weblogs for admins and members
- Content Management
- News Module
- Newsletter and group mail, being send directly to the members' email addresses
- News import via RSS-feed
- Data export via CSV
- Embed external pages via Iframe

3. Community Requirements

The ENCOURAGE Community is an organised set of the user's profile and personal data, and it is designed to meet the following requirements:

- Distributed information: The community may in fact consist of multiple distributed nodes that share information and interconnect ENCOURAGE users.
- Scalability: To support the communication of all actors and the benefit of the exchanging of information.
- Privacy and Data Protection: The community enables the inclusion of mechanisms for maintaining privacy and protecting the integrity of data with all data that comprises experience's information. The specification cannot, however, specify the form, format, or type of these mechanisms or policies for their use. The community must be able to implement privacy and data protection policies and ensure the integrity of data.
- Flexibility: The ENCOURAGE community includes many different actors, which are in practice represented by different nodes in different contexts.
- Activity: Any related activity in any state of user experience and behaviour.
- Interest: Information describing experiences and behavioural activities.
- Accessibility: General accessibility to the user information.
- Security key: The set of passwords and security keys assigned to the community for him/her to access the platform.

Six core principles underlie the value of social-media solutions, and, in combination, serve as the defining characteristics that set social media apart from other forms of communication and collaboration.[1]

1. Participation
2. Collective
3. Transparency
4. Independence
5. Persistence
6. Emergence

Participation
Successful social-media solutions tap into the power of mass collaboration through user participation. The only way to achieve substantial benefits from social media is by mobilizing the community to contribute. You can't capture the "wisdom of the crowds" if the crowds don't participate.

[1] http://blogs.gartner.com/anthony_bradley/2010/01/07/a-new-definition-of-social-media/

Collective
Varied definitions and applications of the term "collective" abound and cover a wide spectrum of meanings. Here, as a core principle of social media, the use of the term "collective" is tightly aligned with its root origins "to collect." With social media, participants "collect" around a unifying entity. People collect around the Facebook social graph to contribute their profile information. People collect on Wikipedia to add encyclopaedia articles. People collect on YouTube to share videos. In these examples, as in all social media, people collect around the content to contribute rather than individually create the content and distribute it.

Transparency
With social media, it is not enough to collect participant contributions. A social-media solution also provides transparency in that participants are privy to each other's participation. They get to see, use, reuse, augment, validate, critique and rate each other's contributions. Without transparency, there is no participant collaboration on content. It is in this transparency that the community improves content, unifies information, self-governs, self-corrects, evolves, creates emergence and otherwise propels its own advancement.

Independence
The principle of independence means that any participant can contribute completely independent of any other participant. This is also called anytime, anyplace collaboration. Participants can collaborate no matter where they are or whoever else may be posting content at that time. Generally, there is no workflow or document check-in/check-out that can bottleneck collaboration and impact the scalability required for mass collaboration. No coordination between collaborators is required.

Persistence
With social media, the fruits of participant contributions are captured in a persistent state for others to view, share and augment. This is one of the more obvious principles. It differentiates social media from synchronous conversational interactions, where much of the information exchanged is either lost or captured, most often only in part, as an additional scribing activity.

Emergence
The emergence principle embodies the recognition that you can't predict, model, design and control all human collaborative interactions and optimize them as you would a fixed business process. It is the recognition that one benefit of social media is as an environment for social structures to emerge. These structures may be latent or hidden organizational structures, expertise, work processes, content organization, information taxonomies, and more.

4. Characteristics of the Community

Design
The design of an online community should reflect the purpose while being usable and sociable.

Successful participation is dependent on several things including good navigational tools. All relevant information should be easily attainable to all community members. Complex designed interfaces should be avoided, as it may deter members from participating.

Roles
Having designated roles is a good motivator for members to continually participate. Providing an environment that offers progression is a good way in which to get the audience to engage with the material. However, there has to be cohesion between all users and new users. There has to be active facilitation and moderation between members so that all interaction.

Relations/Groups
Subgroups can be important for online communities; they may increase the longevity of the site by offering members alternatives to the overall site objective. Subgroups can reaffirm social connections between users and keep the audience interested. Subgroups also can be used to reaffirm community governance, as site policy topics keep users acquainted with up-to-date community regulations. These off-topic groups can reignite community enjoyment; however they have to be successfully regulated so they do not take members completely away from the communities overall objective.

4.1. Information Flow

User – Utility
This communication direction proposes a communication flow from the user side to the utility. In this way the community of users is able to interact to the smart building. The ENCOURAGE user is the final favoured or affected by the system functioning. By this communication direction, the user is able to provide feedback to system. This can be achieved by a ticket (report) system. This vehicle pretends to maintain or improve the global system with al kind of relevant information related to the ENCOURAGE Services. This information can be fed from the experiences, the way of using ENCOURAGE Services, the habits and user behaviour. The information is able to warn a temporary system malfunction, provide suggestions, incidents, practices, ideas.

Utility – User

ENCOURAGE can provide information about the current status and scheduled operation of the energy consuming devices connected within the building network. It is possible to know about the current status and scheduled operation of local generation sources and available capacity of storage devices connected to the microgrid. User can be aware of consuming information, services availability, and price estimation in the different time frames.

User – User

The communication flow between people comes when there is a common objective. This community has the aim of improving and better manage the energy consumption. This tool wants also to be a vehicle for information from a user to another user of the system. Users can contribute to this information flow with their experiences, behaviours, advices, practices. They can get more involved in the objectives they look for, if there is a community where to share and provide the information that is relevant for a common better use.

5. Community of End Users

In this section, the community of end users is presented. The end users are identified as well as the information to exchange between users. The community of end users is defined taking into account the characteristics of the use Campus use case.

5.1. Definition of the boundaries of the test, scope and limitations

In order to define the boundary of the system, different scenarios of energy consumption and carbon footprint are identified. According the particular characteristics of the Campus use case some potential scenarios have been considered and other potential scenarios are not taken in consideration:

- Direct energy consumption: includes the energy consumed entirely within a Campus area and locally produced. In other words, the energy consumed is self-produced. In the Campus scenario there is not energy production, so this scenario will not be tested.
- Deemed consumption: includes the energy consumption of the inhabitants of the district, but actually produced and thus CO2 emitted outside that district area. Most of the electricity is produced outside the district, so this is the case for Campus scenario.
- Responsible consumption (or responsible carbon footprint): includes the energy produced inside a district area but consumed outside of this area. As mentioned before, there is not energy production in the Campus area so this scenario won't be tested in the ENCOURAGE social network.
- Logistic consumption (or logistic carbon footprint): usually produced by services that are crossing the district but are not placed in the area. For example, energy consumption of the transport services provokes CO2 emissions within the district but they are attributable to logistics. These consumptions won't be considered in our test.

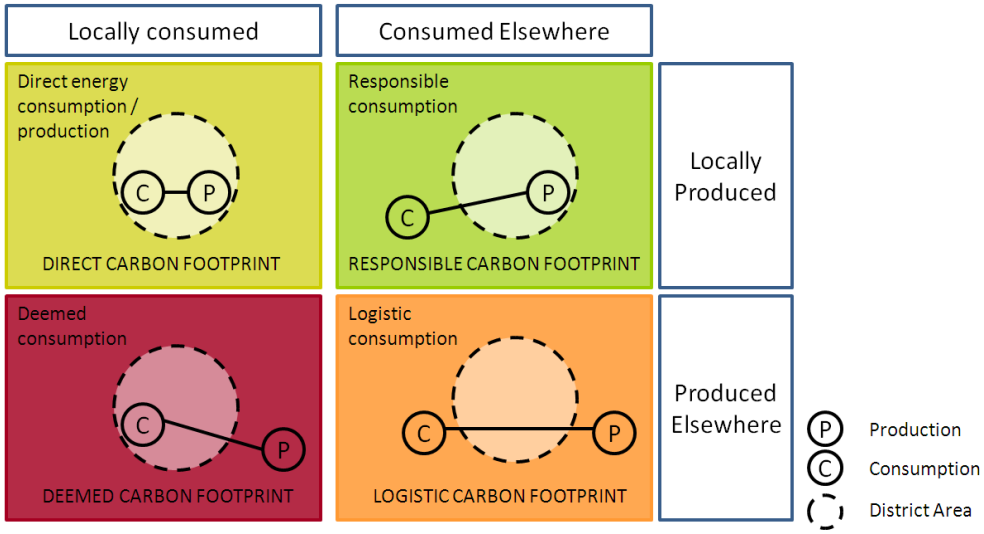

Figure 1: Source: adapted from Lebel et al. (2007)[2]

Two main stakeholders are distinguished within this scenario.

The first group of stakeholder are those who carry out different activities inside the district, walking and crossing the streets, using the buildings and walking through a green area. Within this group of stakeholders, some of the users carry out all of the activities inside the district, but others, may carry out some of the daily activities outside the district. For example, a user can live inside the district and work/study also inside it. On the contrary, a user from the district may have his/her place of residence in other district area.

The second group of stakeholders are those who are responsible for the buildings and they can manage aspects related to the energy performance of these buildings. Managers of public and private buildings and facilities and owners or tenants of a dwelling are included within this group. In some cases, the building manager is also the final user of the space.

5.2. End users Identification and Definition

According the general approach followed, in the community of end users, different users are identified:

2 Lebel L, Garden P, Banaticla M.R.N., Lasco R, Contreras A, Mitra AP, Sharma C, Nguyen H T, Ooi GL, Sari A. (2007). Integrating carbon management into the development strategies of urbanizing regions in Asia. Journal of Industrial Ecology, 11(2): 61-81.

- Consumer: This user is the person who live/work/use in a monitored buildings using the ENCOURAGE system. The user can live/work/use a private space (home, room in the students' hall residence) where the energy consumption is under his/her responsibility, or they can live/work/use public spaces where the energy consumption responsibility is shared with other users (Office, Campus, classroom). It can be entirely under ENCOURAGE monitored spaces or just partially.
- Building Manager: The building manager is the person who is responsible for the maintenance of the different appliances and areas in a building.
- Building: The building is able to be represented as an entity/node in the social network system.
- Stakeholders: Other entities are able to be part of the community. So as Companies/Researching Entities/Retailers/Institutes and other groups of interest that can add value to the purpose of the Community.

5.3. Information to exchange

The main objective of the ENCOURAGE Social Network is to share and exchange experiences in between users related to the energy efficiency consumption in buildings. The ENCOURAGE Social Network relevance is that not only humans will be part of social communities, the smart objects will take part of the community, communicating and assisting the user's activities in every day's life. The ENCOURAGE System will provide captured data to the Social Network from the smart objects, such as user energy consumption, user carbon footprint, number of stars of each consumer. The ENCOURAGE system will calculate the consumer consumption depending on the spaces where the consumer has been during the day and it will send the information to the consumer profile in the Social Network. In addition the number of stars (KPI from the ENCOURAGE System) of each consumer will be sent.

The ENCOURAGE system will provide the consumptions of the building/space for each building account in the Social Network.

The ENCOURAGE Social Network should allow users to receive messages from the ENCOURAGE System (See D2.4 – Detailed specification of functional scenarios). In addition, it should allow users to exchange private messages and public messages.

All the community of end users will be able to compare their consumptions with other users.

Forums could be a good functionality to allow users to discuss behaviours to reduce the energy consumptions and to provide advices.

The implementation of groups can help user to find people with similar interest/problems. The functionality "Follow" could be interesting because some users can be interested in follow which are the results to take a specific action to reduce the energy consumption.

"News" section could be used to keep user information preferences updated. This section can be used for the companies to present new products to improve the building energy efficiency.

It has to be defined a privacy policy.

The following mind map is adapted to business case 4 (Urban Campus).

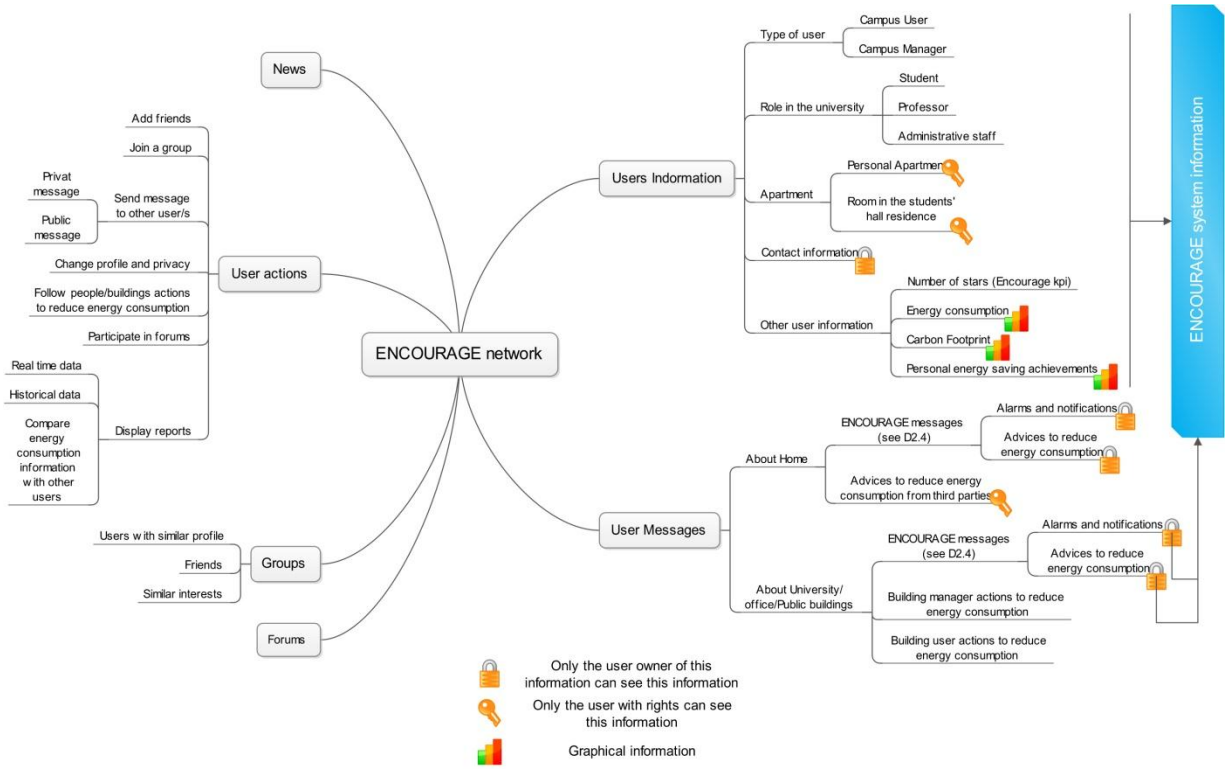

Figure 2: Urban Campus Mind Map

6. Facilities Requirements

In this section, the main physical characteristics of the buildings where the social network will be tested are presented. The social network will be tested in the Campus case study.

For a more accurate and detailed information see submitted deliverable D2.4 – Detailed specification of functional scenarios.

6.1. Number of buildings and location

The case study will take place at the UPC urban Campus located in the city of Terrassa (Barcelona), in a small urban area (less than 0.15 km2) with high compactness, involving relatively high population. Several activities take place close together, blending educational, residential, commercial, industrial and other public building uses. UPC Campus Terrassa has 5,400 students and a great number of buildings.

The scenario will focus on three main buildings of the Campus: the Terrassa School of Industrial and Aeronautical Engineering (TR5 building), the students' hall of residence and a lecturer's apartment. **Fejl! Henvisningskilde ikke fundet.** shows the location of the three buildings in Terrassa.

1. Terrassa School of Industrial and Aeronautical Engineering
2. Students' hall of residence
3. Lecturer's apartment

Figure 3: Buildings in the urban Campus scenario

6.2. TR5 Building

The Terrassa School of Industrial and Aeronautical Engineering is an academic building with a floor area of 11,600 m^2. The main building (TR5) has 3 floors mainly devoted to academic uses. Most of the spaces in the ground, the first and the second floors are lecture rooms. The third floor mostly includes computer rooms, lecture rooms and offices. Selected experimental areas are all located in the third floor and they are a computer room, a lecture room and a lecturer's office.

1. Computers room
2. Lecture room
3. Lecturer's office

Figure 4: Selected experimental areas in the TR5 building. Third floor

Computers room
The computers room PC7 has an area of approximately 83 m2. It delimits with two lecture rooms and the corridor, which are interior areas. The other facade is north-oriented and it has 4 windows.

Lecture room
The lecture room 3.1 has a total area of 79.7 m2 and it delimits with the corridor, a lecture room and an office, which are interior areas. The room is south-oriented and it has 5 windows. Two of its walls correspond to the corridor and the facade, with more than 10 meters.

Lecturer's office
The office has a total area of 63 m2. It has four windows, which are north-face oriented and the other three walls delimit with interior spaces of the school: two lecture rooms and the corridor.

6.3. Students' Hall of Residence

The Students' Hall of Residence five-storey building has about 200 accommodation places: 36 single rooms with a kitchen, 122 single rooms with shared kitchen and 20 double rooms with a kitchen. All rooms are distributed surrounding a central courtyard, as it can be seen in the image.

The social network experimentation will include, as far as possible, students living in the three types of rooms.

Figure 5: Types of rooms in the Students' hall of residence

Each room in the Students' Hall of Residence has natural light, as they have exterior windows in the study room. Moreover, bathrooms have a small window for ventilation oriented to the central courtyard. Most of the rooms in the Students' Hall of Residence delimit with other rooms in two of their walls. The wall which has the door faces the central courtyard and the other is the exterior facade.

6.4. Lecturer's Apartment

The lecturer's apartment participating in the Campus scenario is located in Terrassa, near the Campus, on the fifth floor of a 5 flats building, with two apartments in each floor.

The total area of the apartment is 68 m2, with three rooms between 8 and 11.5 m2, a dining room with almost 16.7 m2, a kitchen, a bathroom and a gallery. The apartment is located in a corner, so all rooms have windows and natural light. Two of its facades are respectively northwest and southwest oriented and the other rooms contact with other apartments of the building.

7. Scenario

This chapter aims to address a hypothetical situation in order to assess the requirements and needs of final user and to design and exploit ENCOURAGE opportunities.

7.1. Storyline

The developed actors for the story line are:

- ***Marc (consumer)***

Marc is a second year student in Terrassa School of Industrial and Aeronautical Engineering in Terrassa. He is currently studying Bachelor's degree in Industrial Technology. Marc is 19 years old and although he comes from Lleida so, he is currently living in the Students' Hall of Residence in Terrassa.

- ***Maria (consumer)***

Maria is a second year student in Terrassa School of Industrial and Aeronautical Engineering in Terrassa. She is currently studying Bachelor's degree in Industrial Technology. Maria is 19 years old and she is currently living in a flat in Terrassa. However her flat is not monitored.

- ***Sara (consumer)***

Sara is a lecturer working in the Department of Construction Engineering in Terrassa School of Industrial and Aeronautical Engineering. She is 27 years old and comes from Tarragona, although during weekdays she lives in an apartment in the Campus area.

- ***Francesc (consumer)***

Francesc is a lecturer working in the Department of Construction Engineering in Terrassa School of Industrial and Aeronautical Engineering. He is 29 years old and he lives in an apartment in Sabadell (a city near Terrassa), his apartment is not monitored by the ENCOURAGE System. Every day he takes the car to go to work.

- ***Judith (project developer)***

Judith is a project engineer involved in the project. She is 30 years old and she is responsible for the development of the system and its operation.

- ***Pere (Maintenance services)***

Pere is the school maintenance chief. He is 52 years old and he is responsible for the maintenance of the different appliances and areas in the school.

- ***Josep (Maintenance services)***

Josep is the Students' Hall of Residence maintenance chief. He is 55 years old and, as Pere, he is responsible for the maintenance of the different appliances and areas in the Students' Hall of Residence.

- ***Manel (Building manager)***

Manel is the school building manager. He is 30 years old and he is responsible of the facility management in the building.

- ***Saving Energy (Building manager)***

Saving energy is a company interested into improve the energy efficiency in the house sector.

7.2. Consumer scenario

The following situation describes the operation of the system, with four main actors: one student living in a monitored apartment (Marc), one student living in a non-monitored apartment (Maria), a lecturer living in a monitored apartment (Sara) and a lecturer living in a non-monitored apartment (Francesc).

The monitored apartments are connected to the ENCOURAGE System.

Marc is enrolled to Industrial Engineering Degree at the University located in the city of Terrassa as well as Maria. Marc lives in the Student Hall of Residence of the district. His room is monitored by the ENCOURAGE system, however Maria lives in an apartment non-monitored by the ENCOURAGE System. Sara is a lecturer in Terrassa School of Industrial and Aeronautic Engineering as well as Francesc. Sara lives in an apartment located in the same district as the Campus. Sara's apartment is monitored by the ENCOURAGE System, however Francesc lives in an apartment non-monitored by the ENCOURAGE System. Marc, Maria, Sara and Francesc are not aware of his Carbon Footprint and the energy associated with their daily activities. They participate in an activity organized by the University with the aim of improving the Carbon Footprint awareness of the inhabitants and users of the district. After participating in the experimentation, they will be aware of it and will be able to change some of their daily activities to reduce it.

The first time Marc or Maria or Sara or Francesc enters the Social Network User Interface (SNUI), they are asked to log in or register. In this first release, they must use the university account. They are asked for the next information (the parameters marked with asterisk are mandatory):

- User name *
- Age *
- Role in the university * (student / lecturer / administrative staff)
- Daily timetable of the semester *
- Other activities
- Home basic characteristics

This information is sent from the Social Network to the ENCOURAGE system.

From then on, they are able to consult the consumption of the Campus buildings. In addition, after a minimum time, they will be able to consult their contribution to this consumption. This information is provided by the ENCOURAGE System.

Due to the collection of these data, the ENCOURAGE system will be able to calculate the energy consumption of Marc, Maria, Sara and, Francesc. The ENCOURAGE system is able to monitor the spaces where the users have been doing an activity during the day. The system will also generate feedback as a result of the data received. Campus users will be able to check through the web interface either from a computer or a mobile device:

- Information related to their Carbon Footprint and energy consumption
- Energy consumption of the buildings
- Saving energy technologies implemented in the buildings and individual saving energy actions that can be adopted.
- Personal energy saving achievements

So, to generate all this feedback, the system needs to have different inputs from both the user and the buildings.

- How long Campus users have been in each predefined area of the building (this data will be introduced by users at the beginning of the semester and can be modified if users do not follow this routine)
- Instant energy consumption of each predefined area of the building
- General data of each predefined area of the building
- Saving energy technologies implemented in the predefined areas of the buildings and individual saving energy actions they can adopt

The **student Marc** usually uses two of the Campus buildings:

School

Marc goes to the faculty, as he detailed in his daily routine. During a day, he uses a lecture room to attend courses and a computer room to attend practices and to work when he is in the faculty and labs. When Marc logs in the feedback interface, he can be aware of the Carbon Footprint associated with the activities he can carry out in the different modelled areas inside the building (lecture rooms, computer rooms) as well as the technologies implemented to reduce his energy consumption.

Student Hall of Residence

Marc comes back to the student Hall of Residence, where he is living. His entrance in the room is according to his previously introduced daily routine and detected by a sensor of presence. Marc can log in the web interface and compare his current Carbon Footprint with the one in the faculty, as well as seeing his current energy consumption. Once more, he can also be

aware of the technologies implemented to reduce his energy consumption.

The **student Maria** usually uses only one of the Campus buildings:

School

Maria goes to the faculty, as he detailed in his daily routine. During a day, she uses a lecture room to attend courses and a computer room to attend practices and to work when he is in the faculty and labs. When Maria logs in the feedback interface, he can be aware of the Carbon Footprint associated with the activities she can carry out in the different modelled areas inside the building (lecture rooms, computer rooms) as well as the technologies implemented to reduce his energy consumption.

The **lecturer Sara** usually uses two buildings:

School

Sara goes to the faculty to teach courses and to work as a researcher. Although she spends most of time in the office, she also goes to lecture rooms and computer rooms to teach both lectures and practicals. The daily routine that she has introduced at the beginning of the semester allows the system to know which spaces she occupies in each moment. The lecturer can be aware of the Carbon Footprint associated with the activities she can carry out in the different modelled areas inside the building (lecture rooms, computer rooms and office). She can also be aware of the technologies implemented to reduce her energy consumption.

Lecturer's Apartment

Sara comes back to her apartment. Her entrance in the building is according to her previously introduced daily routine and detected by a sensor of presence. Sara can log in the web interface and find out which is her energy consumption in the apartment. She is also provided with some advices to reduce her energy consumption in the apartment. Once more, she can also be aware of the technologies implemented to reduce her energy consumption.

The **lecturer Francesc** usually uses one building:

School

Francesc goes to the faculty to teach courses and to work as a researcher. Although he spends most of time in the office, he also goes to lecture rooms and computer rooms to teach both lectures and practicals. The daily routine that he has introduced at the

beginning of the semester allows the system to know which spaces he occupies in each moment. The lecturer can be aware of the Carbon Footprint associated with the activities he can carry out in the different modelled areas inside the building (lecture rooms, computer rooms and office). He can also be aware of the technologies implemented to reduce her energy consumption.

At the end of a regular day, Marc or Maria or Sara or Francesc are at home and wonder about their personal energy consumption during the day, not only in the university, but also the energy consumption of their room. They access the Social Network and consult the following data:

Value	Units	Period of time
Personal energy consumption	kWh	Per day Per week Per month
Cost of personal energy consumption	€	Per day Per week Per month
Personal carbon footprint	tCO_2 Trees to offset carbon emissions	Per day Per week Per month
Historical comparison of energy consumption	kWh € tCO_2	-
Normative comparison	kWh € tCO_2	Per day Per week Per month
Appliance specific breakdown	kWh	Per day Per week Per month

Table 1: Data available in Social Network Community

The normative comparison will compare anonymously his behaviour with similar users (similar timetable, similar age and similar activities during the day)

Marc, Maria, Sara and Francesc can compare their own consumptions with their friends.

Moreover, the consumer will be able to see the stars remaining in his possession and some news about actions carried out in the Campus to reduce the energy consumption. Furthermore, he will be able to see the last 10 advices to reduce energy that he has received. All this information has to be provided by the ENCOURAGE system.

The ENCOURAGE system has a point scale rating. When Marc or Sara first log in, they are given 5 stars. These stars are meant to be used as incentive to them and can be lost or won according to the behaviour of the user.

- A user loses ½ star when:
  - Does not follow the advices of the system
  - Does not log in the interface for 2 weeks
  - Increases their week average energy consumption
- A user wins ½ star when:
  - Follows the advices of the system
  - Reduces their weekly average energy consumption

In some cases, the ENCOURAGE system will send notifications to Marc or Sara and this messages will be displayed in the Social Network but in the private space. These are:

Situation	Notification
The system senses that the temperature in the apartment is lower than needed	The message asks the user to turn the temperature up
The system senses that the temperature in the apartment is higher than needed	The message asks the user to turn the temperature down
The system knows that there is no one in the apartment and the lights are on	The message asks the user to switch the lights off
The system knows that there is no one in the apartment and heating is on	The message asks the user to switch the heating off / turn it down
The system knows that there is no one in the apartment and some appliances have been left on	The message asks the user to switch the appliances off
The user has not accessed the UI for 1 week	Reminder with some relevant data of their consumption

Table 2: Advices sent to reduce energy consumption

Francesc has not an account in the Social Network. He decided to create a profile in the Social Network. He verifies if any college has an account in the Social Network. For that propose, he use the Social Network function to search people. He found some friends. In addition, the social network (using the internal engine) proposed to Francesc to send an invitation to be friends with Sara because they work in the same building and same department.

Today Sara realizes that she is not going to follow her daily routine, as she has arranged an appointment with the doctor. For this reason she is going to arrive later in the university. During the day, she will be able to change her activities and introduce the routine that she is going to follow or has followed this day.

Sara wants to change the lighting system of her house, and she wants to implement leds. For this reason she has logged in the Social Network, and she asked in the forum if someone has experience with this kind of technology. She discovered a group who usually discuss about new lighting systems. She is interested in this topic and she decided to join this group. Sara found that Saving Energy is a company who is developing new management tools for lighting in homes, she decided to send and invitation to keep in touch. She wants to be updated about all new products of this company. Finally Sara received an invitation to be in touch with Francesc. She decided to accept him as a friend, and before log off she check which is the footprint of her workmate.

Marc wants to install a screen in his apartment. In order to be monitored and to be included in the system, he needs to inform the director of the Students' Hall of Residence. The director has some spare smart plugs provided by the developers. Josep installs the smart plugin into Marc's room and afterwards the director sends an email to Judith, who has administrator permission for the ENCOURAGE system, detailing the code of the smart plug and the appliance which is going to monitor. She assigns the code of the new smart plug to Marc's apartment and appliance and check that the readings are operating properly. From now on, Marc can see in the Social Network his new screen.

Marc has a good idea to reduce the energy consumption when the students use a lecture room; he proposes to follow a protocol to open the lights: First of all the students will open the blinds, then the students will move near the windows, and finally if there is not enough light students will turn on the lights. Marc opens a new forum in the Social Network to discuss this protocol with their class mates. Some class mates make contributions to the Marc's idea. Finally the Marc's class decides to use the protocol. Marc and his class mates reduce the energy consumption with that protocol and they decide to share this experience with other friends. In addition Marc sends a message to Manel explaining this protocol.

Maria participates in the forum proposed by Marc.

7.3. Building manager scenario

Manel check the following data from all the buildings that he manages:

Value	Units	Period of time
Building energy consumption	kWh	Per day Per week Per month
Cost of building energy consumption	€	Per day Per week Per month
Building carbon footprint	tCO_2 Trees to offset carbon emissions	Per day Per week Per month
Historical comparison of energy consumption	kWh € tCO_2	-
Normative comparison	kWh € tCO_2	Per day Per week Per month
Appliance specific breakdown	kWh	Per day Per week Per month

Table 3: Data which can be consulted in the Social Network

One of his tasks is to reduce the energy consumption for this reason he check if any building user proposes any saving measure. Today he has a new message from Marc. Marc proposes a protocol to open the lights when the students use a lecture room. Manel decide to publish this measure in the news section with the aim that all building users use this protocol. In addition he sends a message to all building users to explain this new measure.

Manel compare the consumptions of all the buildings that he manages and compares the consumptions with similar buildings. He checks which measures has been taken from other building managers and which was the effectiveness of each measure through the Social Network.

7.4. Companies Scenario

Energy Savings is developing new tools for energy efficiency in houses. Energy Savings contact consumers to test their new products. Energy Savings sends a message to Sara to know if she wants to test their new product.

Energy Savings can test their product and verify its effectiveness. The test was successful and it decides to publish the results in the Social Network. Now all the community knows that a new product is in the market and which is the effectiveness of this product.

7.5. Tentative tests

Taking into account the number of monitored spaces in the Campus use case, the number of people that can be involved in the Social Network test is limited. In the table 4 the people that could be involved in the Social Network test is defined.

AREA		WORKING DAYS		NON-WORKING DAYS	
		Day	**Night**	**Day**	**Night**
School of Industrial and Aeronautic Engineering of Terrassa	Computers room	10	0	0	0
	Lecture room	10	0	0	0
	Lecturer's office	2	0	0	0
Students' Hall of Residence		1/2 [3]	1/2	0	0
Lecturer's apartment		1	1	0	0

Table 4: Number of people in the different buildings of the case study

[3] Double rooms of Students' Hall of Residence have 2 occupants, while single rooms and single rooms with shared kitchen only have 1 occupant.

8. Conclusions

A community is a vehicle for best interacting within people that have related and similar aims. This tool facilitates a common view and a better understanding of how energy consumption can be addressed in a more efficient way. Since the social networks are increasing the interconnection between entities in a global system, the possibilities and opportunities are being constantly progressing, as well as the ways this interactions can be outcome.

By the time this deliverable was done, an extended assessment of a wide branch of different open source platforms that allow the creation, definition and developing of a social community was done.

Nevertheless, in order to build a successful community, it is required to contrast this information with the requirements coming from the ENCOURAGE platform and the people and entities involved in the scenario.

The Scenario has been chosen according to the priorities and needs of the ENCOURAGE user awareness testing case. Nowadays the use of electrical components has suffering an exponential rising and one of the pillars of the energy efficiency needs to come from Humans. The way electricity is consumed in all different environments (houses, neighbourhoods, companies, universities, research centres, industrial facilities, etc..) is not near to the efficiency. Electricity is wasted in many cases and electricity consumers habits need to be rationalized.

This task will take advantage of having a concrete community involved in the development of the maximization of the consumption of electrical resources.