Private Public Partnership Project (PPP)
Large-scale Integrated Project (IP)

D11.5.3: Community Building and Engagement Platform

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1.1 Executive Summary

This report is the accompanying document for the third version of Campuse.ro, which incorporates the Recommendation, Gamification and Reputation modules. As with the previous reports about Campuse.ro, this report briefly describes the main requirements, functionalities and characteristics of the current – and in this case final – version, and gives a picture of the improvements that we made on Campuse.ro. Special attention has been paid to skip the features available for the previous version and thus exclusively focus on those developed for this one, and to indicate how the platform has progressed during these months.

We have contemplated three successive deployments of the Campuse.ro platform, having started with the first FIWARE prototype in September 2013, then progressing into May 2014 and finally December 2014, when the commercial version has been finally released at www.campuse.ro.
1.2 About This Document
This report is the accompanying document for the third version of Campuse.ro. The document briefly describes the main requirements, functionalities, architecture and characteristics of such version.

1.3 Intended Audience
All potential users and investors of the Campuse.ro platform: SMEs, large companies, developers and institutional organizations, belonging or not to the FIWARE sphere.

1.4 Keyword list
Engagement, Geek, Web Portal, Reputation, Registration, Gamification, Badges, Segmented Content, Tags, End-users, Campus Party, FIWARE, Developers, Community.

1.5 Changes History

<table>
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<th>Major changes description</th>
<th>Date</th>
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<tr>
<td>v0.33</td>
<td>First complete of deliverable, submission to ATOS and TID</td>
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<td>Javier de Vicente, Paco Ragageles (FNE), Christian Ortega, Leonardo Santiago, Leonardo Moreno (FNE Colombia)</td>
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2 Introduction

Ever since the first Campus Party event took place in the late nineties, strong support has been given for the development of a community that, at the time of writing, approximates to almost 350,000 “campusers”: fanatics of Internet, digital culture and experts in many branches of ICT knowledge. These individuals come from 130 different countries, from Spain to Mexico, and Germany to Brazil and many of them are attendees of the Campus Party events.

The idea of Campuse.ro is in fact very recent. Campuse.ro, as a concept, was born in 2012 with the objective of delivering a digital platform for strengthening and fostering the network of knowledge that is already present in the communities. Making this knowledge continuously available – and not only during the Campus Party events – usable, and useful for other individuals or organizations is the goal of Campuse.ro.

By entering the FIWARE consortium, a huge opportunity for extending this vision has been given to the European FI sphere: the opportunity of making it real and connecting it to the geek and the professional worlds. Our challenge now is to reach the developers, entrepreneurs, companies and researchers and engage them in the FIWARE experience.

Having now delivered the full commercial version Campuse.ro, we expect our users to be able to get in touch with other individuals and organizations with technological interests alike while at the same time promoting contents, activities and talent-search for future tasks and developments on top of the FIWARE architecture.

With all functionalities now in place, a great experimental environment for promotion, cooperation and business development is now ready, gathering thousands of strategic players (developers, creative minds, internet leaders, opinion leaders, bloggers, social media influencers, entrepreneurs, start-ups, big companies, public institutions, media, universities etc) that will contribute to create and support dynamic ecosystems around the FIWARE – and ICT in general – results.

The reader can connect to Campuse.ro at www.campuse.ro/

This report is the accompanying document for the third prototype of Campuse.ro, which has turned into the full commercial release. The report briefly describes the main requirements, functionalities, architecture and characteristics of this version. The features already available for the previous version are not indicated; while we focus on those developed for this one and how the platform has progressed during these months. The new modules designed for this version are “Recommendations”, “Gamification” and “Reputation”.
3 Requirements and Functionalities for the December 2014 Version

In this chapter the requirements and functionalities developed for this version will be introduced to the reader. As it will be noted, the modules relative to this release are directly related to the previously established roadmap, and include three groups of updates to the previous version: (1) Recommendations, (2) Reputation-based interactions and (3) Gamification, based on the level of engagement generated by the recommendation and reputation systems.

As always, the ulterior objective of these functionalities is to improve engagement on the platform. In other words, these are the modules that allow us to identify individual capabilities and needs, stimulating engagement to improve opportunities and interaction between platform and all kind of users on the platform.

3.1 Recommendations

In its previous release, Campuse.ro enabled the “Organization” Profile for a User Profile, which allowed them to register at the platform, manage their business profile and perform basic process such as creating challenges and all the available types of activities on the platform. However, this alone has not improved the level of engagement on certain activities, challenges and business opportunities, such as Talent and Freelance Project, and thus it becomes necessary to have a new level of information management and integration.

To create this level of integration it was fundamental to have an enhanced set of metadata for every type of content. Users and Organizations need to have more integrated information with activities and business opportunities at their disposal. Because of this, a new type of index was created, including their similar interests and tags to enable matching through modules and intermediate systems.

3.1.1 Requirement

The requirements to be met were for the Recommendations module (1) to integrate information on activities together with users/organizations profiles, (2) to enable the profiles with the required information to make recommendations possible (in this version of the platform, by the challenges module, freelance projects and the talent match module, in a specific role if compared to individual users and necessities); (2) to extend the ability of using the reputation module and the (3) gamification module to improve this level of engagement and integrated information.

3.1.2 Quick Description of the Functionality

The platform must make possible to

1. Users:
   1.1. To have more relevant content;
   1.2. To identify and receive more relevant business opportunities;
   1.3. Have a better engagement with another users;
2. Organizations:
   1.1. Have more qualified proposals for their business opportunities;

Through the recommendations module, information is integrated in the user profile such as organizations, activities and existing business opportunities on the platform. This way you can
provide information, content and more relevant opportunities to these entities, thus meeting both their skills and expectations.

For User profiles, the following recommendation levels must be available:

- The activities suggested to a certain user (“the subject”) are defined based on related information to existing activities in the subject’s profile and also referring to other users that the subject follows and/or has become friends with;
- Business opportunities offered to the subject will depend on information registered in his/her professional profile;
- Through professional and content usage information obtained through the actions of the subject, recommendations are provided to existing references in the community;

For Organizations the following recommendation levels must be available:

- Using the information obtained in the registration of business opportunities and existing information in the profile of business users, this organization will have more relevant and reliable suggestions;

3.2 Reputation

With the possibility of registering Job Offers and Freelance Projects, different needs have been identified between the execution of a project for a challenge and for effectively hiring a user to establish him/herself as part of an organization and/or run a marketable project, having defined cost and duration according to a given budget.

To improve the decision-making process inside an organization, a reputation system has been created, which provides relevant information with regards to the professional achievements of a particular user, and the level of integration within the community, which becomes evident through the (3) gamification.

Through a user interface designed to display clearer and more cohesive information on the qualities and merits of a particular user, it becomes easier for an organization to verify more clearly if he/she will be able to perform a certain job and/or perform certain project.

3.2.1 Requirements

Regardless of the Gamification module, the Reputation module will correctly operate if the user:

1. Fills in the information in his/her personal profile, including information of technical nature, that helps to improve his/her reputation within the community;
2. Properly fills in his/her professional information in existing business modules such as Talent and Freelance;

3.2.2 Quick Description of the Functionality

Depending on the type of profile used, different functionalities must be in place:

1. In a User Profile (at the cover page), the subject’s own technical information is displayed, however without much focus on his/her achievements. This was eventually addressed via a new component generated inside the Gamification module that will be explained later.
2. In the same User Profile (but now at the business page), the system requests information relevant to each aspect of business, thus making professional achievements clear, as well as specific skills for his role, including those related to any FIWARE chapter.
3. There is a two-way functionality with Organization profiles: whereas an organization receives notifications about those interested in a specific working position or a proposal for
a freelance project, it can also access user information in his/her public profile and specific category in the business profile sessions, thus verifying the subject’s reputation for a specific need or challenge, FIWARE-related or not.

3.3 Gamification

Gamification actually refers to a new level of Reputation management. By identifying key targets, Campuse.ro provides essential parameters in the definition of any award rules. In a general context of gamification, by creating and indexing of content, activities and business opportunities, as well as relevant data users and organizations, Campuse.ro enables the possibility of creating a number of relevant games for the platform.

3.3.1 Quick Description of the Functionality

The Badges and Premium subscriptions are part of the first dynamics created on the platform to reward existing users:

- **Badges:** By identifying different levels of activity and participation in the platform, medals are generated and provided to specific users according to their level of engagement and commitment. This includes activities and participation in business opportunities, as well as participation in platform-related events, including those related to FIWARE.

- **Premium subscription.** Premium subscriptions exist so Campuse.ro can reward the top active participants in the Campus Party events across the world.
4 Architecture

4.1 Introduction

Campuse.ro was initially a Java-based web system using a standard N-tier architecture, with a presentation tier, business tier, integration tier and data tier. The presentation tier containing all the visible JSP and HTML, and its mission was to handle all inputs from the inner tiers and to deliver outputs to the user. The business tier handled the business logic and provided the abstraction layer to access the database. The integration tier linked internal and external services from third parties. The data tier consisted of the database, providing the persistence required for Campuse.ro.

The new modules suggested that a more modern user interface was probably needed. This was also accentuated by the fact that registered users were asking for a better user experience as well during the Campus Party events. The technical team at FNE and FNC took this chance to quickly migrate from Java to Python, partly motivated by the aforementioned issues, partly motivated by Python’s easier potential to integrate more future modules, and also partly motivated by a number of changes in their human resources, which meant that the right time for a move like that had come. This did not have an impact in the registered users and how they operated with the features developed for T11.5’s iterations 1 and 2, since the technical team at FNE and FNC worked on a separate prototype while the modules 1 and 2 remained operational in a different, published version of Campuse.ro.

By the end of December 2014, the final commercial version of Campuse.ro was released, as a community-building platform to engage every ICT and FIWARE stakeholder.

Figure 2. The Django MTV architecture, as used in FIWARE’s Campuse.ro iteration #3

The new Campusero is a web system developed in Python using the Django\(^1\) framework, which implements the architecture layers M (Model), T (Template) and V (View):

\(^1\) Please refer to https://docs.djangoproject.com/en/1.7/ and https://docs.djangoproject.com/en/1.7/misc/design-philosophies/
Future Internet Core Platform

- Model is the data layer, which contains the abstraction of data and interfaces to the database.
- Template is presentation layer, containing all HTML, CSS, JS and Django Variables, its mission is to get and deliver information from/to the user.
- View is the layer that contains the business rules, its goal is to get the information from the presentation layer, call in the data layer, process the data and return useful information to the user for the presentation layer.

The Django MTV architecture, as used in FIWARE’s Campuse.ro is shown in the figure above.

Django was not at this level of maturity back in May 2013, but now is. Django framework is focused on pragmatic development. In a Django project each feature is developed in a separate App, which has the MTV layers pluggable to the project, thus allowing each new feature to not interfere with the existing project structure. This solely justifies its use in an ever-evolving tool like Campuse.ro, where actors like developers, companies or institutional bodies are constantly requesting changes that need to be addressed in very short time.

Let us quickly describe what happens underneath the new modules. Other previous higher-level modules like logging and authorization and security, and the lower-level previous modules like Talent and Activities are not included here for the sake of simplicity but the reader can have their details in D11.5.1 and D11.5.2.

![Simplified diagram of the Django Apps](image-url)
4.2 Apps

4.2.1 Recommendation

The (Talent) Jobs and Freelance algorithm uses information from these two apps: “Profile” and “Professional”.

- The Profile App has all the user information, including authentication, primary role, the interests area and the skills area.
- The Professional App has information specifically related to the professional life, such as previous Experiences, Certificates, and information related to freelancing, such as cost per hour and level of knowledge.

The algorithm rates each item in parallel between the subject (user) and the job vacancy or freelance opportunity. The weight of each item can be set via the administration interface.

The recommendation algorithm, however, uses information from these two apps: “Profile” and “Activity”.

The “Activity” App includes each user’s registered activities, these being Conference, Workshop and Meeting (see D11.5.1 for details on these). Each activity has Interest Areas and skills, which are then used in the user activity recommendation algorithm.

4.2.2 Reputation

The reputation of a user arithmetically depends on the number and quality of interactions and skills registered in the following apps: “Profile”, “Professional”, “Activity”, “Challenge”, “Community” and “Post”.

To help an organization when choosing among the recommended users and subscribers for a given job or freelance, the reputation algorithm classifies users according to the number of information bits filled in their profiles, as follows: Primary Role, Interest Area and Skills.

The social networks included and the number of activities in which the user has participated are also recorded, as well as the number of followers and followed users, which shows this particular user's involvement within the community.

The algorithm also accounts for information registered in the “Professional” App, which is the information regarding the user's professional life and CV, such as previous experiences, certificates, courses and events.

Users who participated in Challenges, being FIWARE or not, are also scored, and so are users participating in relevant communities.

Users who have written articles via the “Post” App have a higher reputation, which is also taken into account by the reputation algorithm integration Tier.

4.2.3 Gamification

Users can be rewarded by receiving Badges and Premium accounts. Each Badge is added by the Badges App, and inserted in the user via the Profile App, in the Cover tab. The rules for insertion of Badges are defined by the platform Administrator, who has tools in the administrative part of Campuse.ro for creating, inserting and removing badges, and assigning them to one or more users. The Badge consists of an image, a title and description, and a user can have N badges. Users who have premium account have better Reputation and greater number of Recommendations. Premium account is an extension of the Profile app.
5 Quick User Guide

This is a very quick guide to the newly deployed functionalities of the Campuse.ro platform. The new modules are “Recommendation”, “Reputation” and “Gamification”.

5.1 Recommendation

As described in previous chapters, the recommendation system uses information that is indexed according to each user's activities and to their business profiles, on the other hand. Users, by this Recommendation module that uses information allocated in their profiles, can be recommended content, activities and more relevant business opportunities.

Let us access the user’s business profile.

Figure 4. User profile
Figure 5. User Business profile, including Knowledge and Expertise

And now let us click in the Freelance service section:
Figure 6. User Business profile, including Freelance Services

And now into the Employment section:
So, using these profiles, the necessary information is obtained so that the recommendation module makes the most appropriate recommendations, both for content, activities and business opportunities.

Organizations can now, through their Job/Freelance Offer tab and by using Campuse.ro’s database for crossing profiles of information and information created in their jobs and their freelance projects, receive the most appropriate users for contracting and/or implementing their projects. This is done in our example by using the “skills” cell:

Figure 7. User Business profile, including the Employment section
5.2 Reputation

As described in previous chapters, the reputation module aims at improving the availability of relevant data to certain technical and professional features, according to their relevance with regards to the existing business modules.

All the necessary information for recommendations is part of the reputation module, given that this is used for displaying and setting a score to business modules.

However there is the user’s cover in the public profile, which displays some information relevant to their interests and technical skills.
There is also the user's Bios public information that allows a more technical view about this subject's skills.
Figure 10. User Bios

Through these public sets of information, one can visually get a sense of the reputation of the user. It is also of use for improving any comparison of needs and characteristics required for a business opportunity.

The level of engagement with the activities also results in different levels of user’s reputation and business opportunities provided on the platform, and can be viewed publicly in the user profile, “Activities” tab:
Gamification

As described in previous chapters, the Gamification module aims at creating game dynamics to
award and recognize users according to their achievements.
In this module, through an administration interface, you can provide medals, such as shown in the user's Cover, and provide Premium subscription for users who attend the Campus Party events across the Globe.

![Figure 12. User Cover: badges](image)

Supplying users with medals is effective in improving the engagement on the platform, as well as continuously enhancing the integration of information required for the recommendation and jobs modules. The badges system was launched in December 2014, but initially tested live in the Campus Party Brazil February 2015, hence the Portuguese names we give below.

5.3.1 Badges
Currently Badges are already provided in accordance with certain basic rules, as follows the table below:

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<tr>
<th>Concept</th>
<th>Title (Portuguese)</th>
<th>Mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>Campusero Registration</td>
<td>Campusero basic</td>
<td>Automatic</td>
</tr>
<tr>
<td>Talent Tags</td>
<td>Mi Talento</td>
<td>Automatic</td>
</tr>
<tr>
<td>CSI Registration</td>
<td>Sugiro conteúdos</td>
<td>Automatic</td>
</tr>
<tr>
<td>1st online conference view</td>
<td>Campusero Online</td>
<td>Automatic</td>
</tr>
<tr>
<td>SomethingBetter Registration</td>
<td>Tengo Consciencia Social</td>
<td>Automatic</td>
</tr>
</tbody>
</table>

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2 The badges system was launched in December 2014, but initially tested live in the Campus Party Brazil February 2015, hence the Portuguese names
Then there are the advanced badges:

<table>
<thead>
<tr>
<th>Concept</th>
<th>Title (Portuguese)</th>
<th>Mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;Active Online&quot; Participation</td>
<td>Campusero Online Ouro</td>
<td>Automatic</td>
</tr>
<tr>
<td>&quot;Active CSI&quot; Participation</td>
<td>Ayudante de Contenidos</td>
<td>Automatic</td>
</tr>
<tr>
<td>&quot;Active SomethingBetter&quot; Participation</td>
<td>Quero mudar o mundo</td>
<td>Automatic</td>
</tr>
<tr>
<td>Buy 1 Campus ticket</td>
<td>Sou Campusero</td>
<td>Automatic</td>
</tr>
<tr>
<td>Buy Camping</td>
<td>Campusero Prata</td>
<td>Automatic</td>
</tr>
<tr>
<td>Participate in a themed Campus Party area</td>
<td>Campusero amante de… [area temática]</td>
<td>Automatic</td>
</tr>
<tr>
<td>Join 10 activities of the same field</td>
<td>Campusero Aplicado</td>
<td>Automatic</td>
</tr>
<tr>
<td>Parcitipate actively in an activity</td>
<td>Campusero Aplicado Prata</td>
<td>Automatic</td>
</tr>
<tr>
<td>Create an approved activity</td>
<td>Campusero Aplicado Ouro</td>
<td>Automatic</td>
</tr>
<tr>
<td>Show work in a Challenge</td>
<td>Open Innovation Prata</td>
<td>Automatic</td>
</tr>
<tr>
<td>Show work in 10 challenges</td>
<td>Open innovation Ouro</td>
<td>Automatic</td>
</tr>
<tr>
<td>Bring 100 campuseros</td>
<td>Campusero de Coração de Ouro</td>
<td>Automatic</td>
</tr>
<tr>
<td>Participate in 5 Campus Parties</td>
<td>Campusero Veterano</td>
<td>Automatic</td>
</tr>
<tr>
<td>Go to a Campus Party in another country</td>
<td>Campusero Internacional</td>
<td>Automatic</td>
</tr>
<tr>
<td>Win a challenge</td>
<td>Open Innovation Diamante</td>
<td>Automatic</td>
</tr>
<tr>
<td>Bring 500 campuseros</td>
<td>Campusero de Corazon Diamante</td>
<td>Automatic</td>
</tr>
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</table>
6 Conclusions

Campuse.ro has evolved from a basic profiling tool into a complex, but highly usable, platform that is able to engage very different actors that orbit around the ICT, Open Source and Entrepreneur worlds, to which FIWARE is nothing but a crucial ecosystem.

Campuse.ro started out by being able to profile individual users and enabling them to interact by means of online conferences and other offline activities such as meetings and basic social networking. The inclusion of what we called the “Organization” profile very much enriched the platform and its ultimate aim of building a complete community.

Later on, Campuse.ro included the Talent and Challenges modules. They extended the purpose of the platform. In the case of Talent, they allowed companies and entrepreneurs to efficiently find experts in different areas of knowledge, to develop a specific task or to fill a job vacancy. In the case of Challenges, they enabled direct interaction between the individual users and organizations seeking to find on-the-spot solutions and innovative ideas using special contests.

We have now reached the end of the project with a platform that not only profiles all the relevant actors, puts them in touch through activities that seek to enlarge their knowledge of the FIWARE and ICT fields, enables them to be bound together for a specific ICT-related task, but also awards the very best of them and recommends them to each other.

Campuse.ro is now a flexible portal able to cope with whatever needs its partners demand, able to be extended with new plug-in modules and able to connect people with each other so they effectively do things together. As just an example: Campuse.ro was the platform used to launch, in December 2014, the very latest FIWARE hackathon, eventually performed at the Campus Party Brazil in Sao Paulo (February 2015). Everybody, from organizers to participants, accessed all materials, instructions and recommendations from Campuse.ro, it was all managed from the platform, and the winning application – on water management through FIWARE-based sensor technology – is now being improved by its team of young developers and UX designers.