

Annex to the Deliverable D200.7

Flspace Front-End User Guide

WP 200

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¹ Contributors to Flspace code (“P”) include ATB, UDE, IBM, ATOS, KOC, TOG, AST, NKUA, UPM and LimeTri; contributing persons are listed at <https://bitbucket.org/flspace/profile/members>

The Flspace Project

Leveraging on outcomes of two complementary Phase 1 use case projects (Flnest & SmartAgriFood), aim of Flspace is to pioneer towards fundamental changes on how collaborative business networks will work in future. Flspace will develop a multi-domain Business Collaboration Space (short: Flspace) that employs FI technologies for enabling seamless collaboration in open, cross-organizational business networks, establish eight working Experimentation Sites in Europe where Pilot Applications are tested in Early Trials for Agri-Food, Transport & Logistics and prepare for industrial uptake by engaging with players & associations from relevant industry sectors and IT industry.

Project Summary

As a use case project in Phase 2 of the FI PPP, Flspace aims at developing and validating novel Future-Internet-enabled solutions to address the pressing challenges arising in collaborative business networks, focussing on use cases from the Agri-Food, Transport and Logistics industries. Flspace will focus on exploiting, incorporating and validating the Generic Enablers provided by the FI PPP Core Platform with the aim of realising an extensible collaboration service for business networks together with a set of innovative test applications that allow for radical improvements in how networked businesses can work in the future. Those solutions will be demonstrated and tested through early trials on experimentation sites across Europe. The project results will be open to the FI PPP program and the general public, and the pro-active engagement of larger user communities and external solution providers will foster innovation and industrial uptake planned for Phase 3 of the FI PPP.

Project Consortium

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- Aston University; United Kingdom
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- KTBL; Germany
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Dissemination Level

PU	Public	
PP	Restricted to other programme participants (including the Commission Services)	X
RE	Restricted to a group specified by the consortium (including the Commission Services)	
CO	Confidential, only for members of the consortium (including the Commission Services)	

Change History

Version	Notes	Date
001	Creation of the document Front-End User Guide	09.12.2014
002	Update of the contents, added new features and functionalities, screenshots updated	20.01.2015
003	Internal review process, checking URL links to the Flspace Web online documentation Update of the abbreviation table, update of the references table Final version ready for submission of approved document	06.02.2015
004	Update of the coordinator information in the section " <i>More Information</i> " Added Flspace development repository and documentation references, formatting improvement Final version ready for submission to EC	27.02.2015
005		
006		

Abbreviations

AAA	Authentication, Authorisation, and Accounting	IDE	Integrated Development Environment
ACSI	Artifact-Centric Service Interoperation	IDM	Identity Management
AdvB	Advisory Board	i.e.	id est = that is to say
AJAX	Asynchronous JavaScript + XML	IE	Integration Environment
API	Application Programming Interface	IEC	International Electrotechnical Commission
App	Software Application	IETF	Internet Engineering Task Force
B2B	Business-to-business	I/O	Input / Output
B2C	Business-to-Consumer	IoT	Internet of Things
BCM	Business Collaboration Module in Flspace	IP	Intellectual Property
BCO	Business Collaboration Objects in Flspace	IP (protocol)	Internet Protocol
BE	Business Entities	IPR	Intellectual Property Rights
BPPC	Business Process Participant Configuration	IPsec	Internet Protocol Security
BSS	Business Support Systems	IT	Information Technology
CDR	Charging Detailed Records	ITU	International Telecommunication Union
CEP	Complex Event Processing	ISO	International Standardization Organisation
CSB	Cloud Service Bus	J2SE	Java 2 Platform, Standard Edition
CSS	Cascading Style Sheets	JDK	Java Development Kit
CSV	Comma-Separated Values	JDT	Related to Eclipse Java Development Tools
D	Deliverable	JMX	Java Management Extensions
DAO	Data Access Object	JRE	Java Runtime Environment
DB	Database	JS	JavaScript
DoW	Description of Work	JSON	JavaScript Object Notation
EC	European Commission	JSP	Java Server Page
EDI	Electronic Data Interchange	JVM	Java Virtual Machine
EE	Experimentation Environment	KPI	Key Performance Indicator
e.g.	Exempli gratia = for example	LPA	Logistics Planning Application
EPA	Event Processing Agent	M	Month
EPM	Event Processing Module in Flspace	MTBF	Mean Time Between Failures
ESB	Enterprise Service Bus	MVC	Model–View–Controller
EU	European Union	OASIS	Organization for the Advancement of Structured Information Standards
FIA	Future Internet Assembly	OAuth	Open standard Authentication protocol
FI-PPP	Future Internet Public Private Partnership	OMG	Object Management Group
FP7	Framework Programme 7	OSS	Operational Support Systems
GA	Grant Agreement	P2P	Peer-to-peer
GE	Generic Enabler	PaaS	Platform as a Service
GUI	Graphical User Interface	PDE	Related to Eclipse Java Development Tools
HTML	HyperText Markup Language	PE	Production Environment
IaaS	Infrastructure as a Service	PIA	Product Information App
ICT	Information and Communication Technology		

PIE	Preliminary Integration Environment	SWT	Standard Widget Toolkit
PKI	Public Key Infrastructure	T	Task
PM	Person Month	TCP	Transmission Control Protocol
POM	Project Object Model (used by maven tools)	TIC	Tailored Information for Consumers
Proton	IBM Proactive Technology Online	TLS	Transport Layer Security
QoS	Quality of Service	TPM	Transport Planning Module
RBAC	Role-Based Access Control	UAA	User Management, Authentication and Authorisation
RCP	Rich Client Platform	UI	User Interface
REST	Representational State Transfer	UML	Unified Modeling Language
RFC	Request for Comments	URI	Universal Resource Identifier
RSS	Revenue Sharing System	URL	Universal Resource Locator
RTD	Research and Technological Development	USDL	Unified Service Description Language
SaaS	Software as a Service	VM	Virtual Machine
SDI	System and Data Integration layer in Flspace	VPN	Virtual Private Network
SDK	Software Development Kit	W3C	World Wide Web Consortium
SME	Small and Medium Sized Enterprise	WADL	Web Application Description Language
SOA	Service Oriented Architecture	WLAN	Wireless Local Area Network
SOAP	Simple Object Access Protocol	WP	Work Package
SOA-RM	(OASIS) Reference Model for Service Oriented Architecture	WS	Web Service
SPT	Security, Privacy and Trust Framework	WSDL	Web Services Description Language
SSH	Secure Shell	XLS/XLSX	Microsoft Excel file Format
SSL	Secure Sockets Layer	XML	eXtensible Markup Language
SSO	Single Sign On	XSD	XML Schema Definition
ST	Sub-Task		

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1 Introduction

The aim of this document is to describe the main features and functionalities of the Front-End component presented as a user guideline related to the business collaboration activities. It describes the graphical user interface (GUI) and the user interaction to login, manage its account and profile among other features.

This document is an annex of the main deliverable D200.7 “Flspace Integrated Release V3” in addition to other documents and resources related to the Flspace Project ([7][8][9][10][11][12][13]). The online documentation for User Front-End is also available in the following web site [12][13]: <http://dev.fispace.eu/doc/wiki/gui> and <http://dev.fispace.eu/doc/wiki/gui/gui-guide>

1.1 Scope

The User Front-End serves as the main point of access for users of the platform services and Apps. It includes the following main features:

- **Customizable user dashboards:** To ensure our applications are usable, the front-end strives to provide an environment where they feel comfortable, i.e., provide interaction patterns that understand limitations and offer potential opportunities to the users.
- **Social networking and collaboration features** for business partners.
- **Access from anywhere across multiple devices.**

The User Front-End builds the main access point for users of the Flspace platform. Through the integration of external widgets (e.g., from the store, externally developed Apps or other external providers), the User Front-End facilitates an “all you need in one place” user experience and creates a central access point. To support the diversity of Flspace users and devices the User Front-End will be adaptable to specific needs, tasks and roles. Beyond the adaptation to different devices, the User Front-End also supports the configuration of the user interface. This allows the interface personalization in order to address specific user needs or enable custom brandings for companies. The Front-End also enables users to create relations to business partners to facilitate the communication among them (comparable to modern social networks).

User Front-End has been developed as a web application. This web application can be accessed from several devices using its specific URL.

Table 1 shows the list of topics or features described in this document and the corresponding section:

Topic	Section
Login	Section 2.3
User Profile	Section 2.4
Company Profile	Section 2.5
Add another user as Partner	Section 2.6
Follow a company	Section 2.7
Chat & Internal Mail	Section 2.8
Language and FIspace customization	Section 2.9
FIspace News	Section 2.10
Advanced Search	Section 2.11
Guided Tour	Section 2.12
My Communities	Section 2.13
Business & Capabilities	Section 2.14

Table 1: List of topics or features described

Table 2 shows the links to other online resources related to FIspace project and FIWARE.

Description	Link
FIspace Business collaboration web site	http://www.fispace.eu/
FIspace Developer Documentation web site	http://dev.fispace.eu/doc/wiki/Home
FIspace Deliverables web site	http://www.fispace.eu/deliverable.html
FIspace Tutorial web site	http://www.fispace.eu/tutorials.html
FIWARE web site	http://www.fi-ppp.eu/projects/fi-ware/
FIWARE Catalogue of the Generic Enablers (GEs)	http://catalogue.fi-ware.org/
FIWARE community web site	http://www.fi-ware.org/community/

Table 2: Other FIspace and FIWARE resources

The Front-End component interacts with Wirecloud and WStore (FIWARE GEs [14][15]). These interactions are performed using both Generic Enablers and embedded into a Front-End Frame (web Iframe).

Table 3 shows the links to the Wirecloud online documentation.

Description	Link
FIWARE - Catalogue - Application Mashup - Wirecloud	http://catalogue.fi-ware.org/enablers/application-mashup-wirecloud
FIWARE - Catalogue - Application Mashup - Wirecloud Documentation	http://catalogue.fi-ware.org/enablers/application-mashup-wirecloud/documentation
FIWARE - Application Mashup - Wirecloud - User and Programmer Guide	https://forge.fi-ware.org/plugins/mediawiki/wiki/fiware/index.php/Application_Mashup_-_Wirecloud_-_User_and_Programmer_Guide
Dashboard - Wirecloud home page	http://conwet.fi.upm.es/wirecloud/
Dashboard - The WireCloud Mashup Platform	http://conwet.fi.upm.es/docs/display/wirecloud/The+WireCloud+Mashup+Platform
Dashboard - Welcome to CoNWeT-Wirecloud Confluence	http://conwet.fi.upm.es/docs/dashboard.action
Dashboard - User Guide	http://conwet.fi.upm.es/docs/display/wirecloud/WireCloud+User%27s+Guide
Dashboard - WireCloud Installation and Administration Guide	http://conwet.fi.upm.es/docs/display/wirecloud/Wire-Cloud+Installation+and+Administration+Guide

Table 3: Wirecloud online documentation

Table 4 shows the links to the WStore online documentation.

Description	Link
FIWARE - Catalogue - Store - WStore	http://catalogue.fi-ware.org/enablers/store-wstore
FIWARE - Catalogue - Store - WStore Documentation	http://catalogue.fi-ware.org/enablers/store-wstore/documentation
FIWARE - Store - W-Store - User and Programmer Guide	https://forge.fi-ware.org/plugins/mediawiki/wiki/fiware/index.php/Store_-_W-Store_-_User_and_Programmer_Guide
FIWARE - Store - W-Store - Store - W-Store - Installation and Admin-	https://forge.fi-ware.org/plugins/mediawiki/wiki/fiware/index.ph

Administration Guide	p/Store - W-Store - Installation and Administration Guide
----------------------	---

Table 4: Store online documentation

Table 5 shows the external development tools references.

Description	Link
Java Environment, JVM, JRE, JDK (Oracle)	http://www.oracle.com/technetwork/java/javase/downloads/index.html
Eclipse IDE (Integrated Development Environment)	https://www.eclipse.org/ , https://www.eclipse.org/downloads/
Maven	http://maven.apache.org/ , http://maven.apache.org/download.cgi

Table 5: External development tools references

Table 6 shows the FIspace development repository and documentation references based on the bitbucket tools for collaborative development.

Bitbucket is a hosting site for the distributed version control systems (DVCS) Git (<http://git-scm.com/>) and Mercurial (<http://mercurial.selenic.com/>). The service offering includes an [issue tracker](#) and [wiki](#), as well as integration with a number of popular [services](#) such as Basecamp, Flowdock, and Twitter.

Description	Link
Bitbucket FIspace repository home page	https://bitbucket.org/fispace
Bitbucket FIspace core component home page	https://bitbucket.org/fispace/core/wiki/Home
Bitbucket FIspace Roadmap page	https://bitbucket.org/fispace/core/wiki/roadmap

Table 6: Bitbucket collaborative environment for FIspace development

This document is the initial guideline for the Front-End. More updated information can be found on the FIspace online documentation.

Online documentation for User Front-End [12][13]: <http://dev.fispace.eu/doc/wiki/gui>

1.2 Intended audience

The main interest groups of this document are the users who will use the FIspace Front-End as the main Graphical User Interface and access point to manage their business information and interact with the core functionalities of the FIspace platform related to business collaboration.

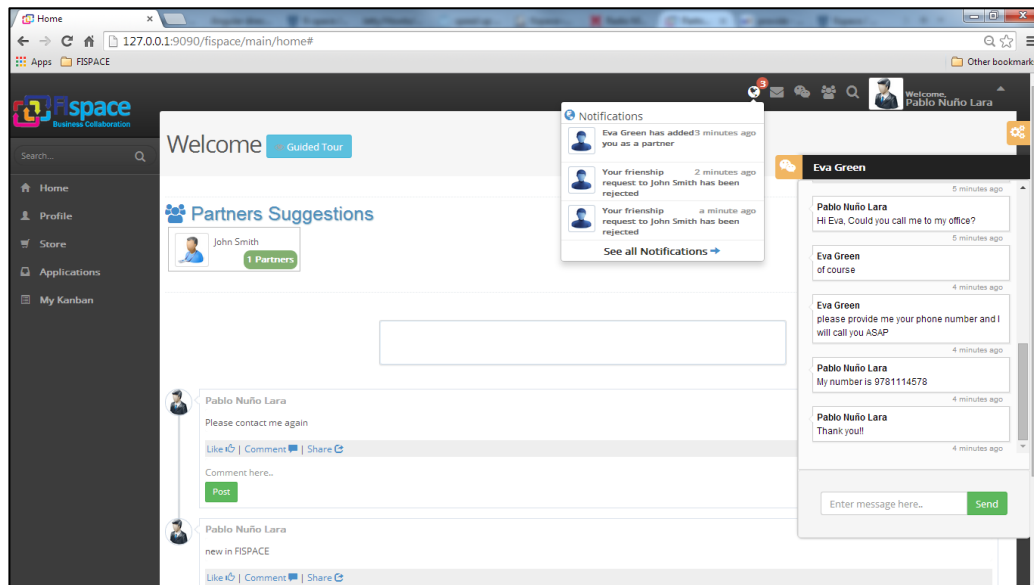
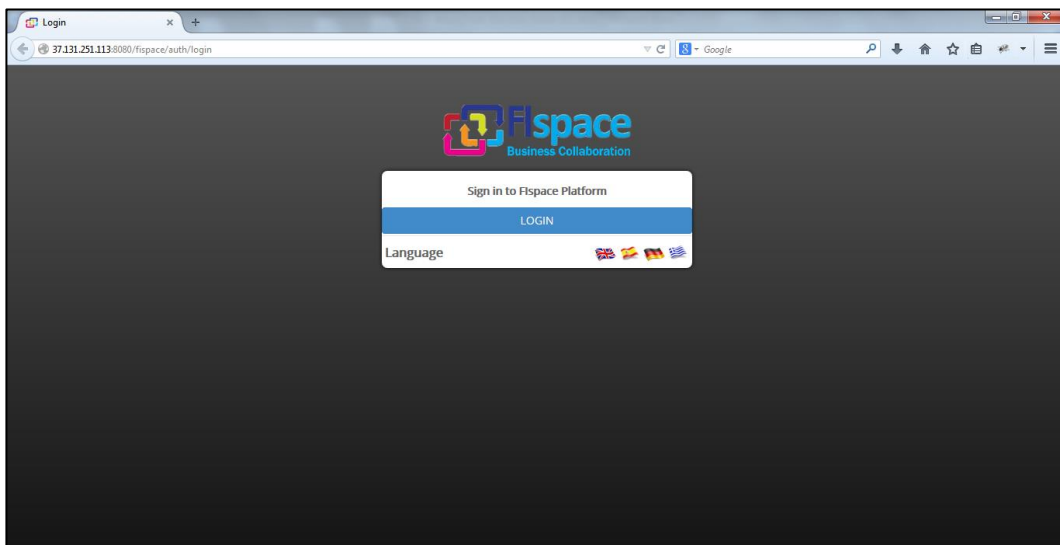
2 Front-End User Guide

2.1 Goal and objectives

The Goal and objectives of this Front-End User Guide is to provide useful information to Flspace users in order to facilitate their interaction with the main functionalities that Flspace Front-End presently offers.

2.2 Overview

In the following figures you can see an overview of different aspects and functionalities inside Flspace. These functionalities are described in detail in the following sections.



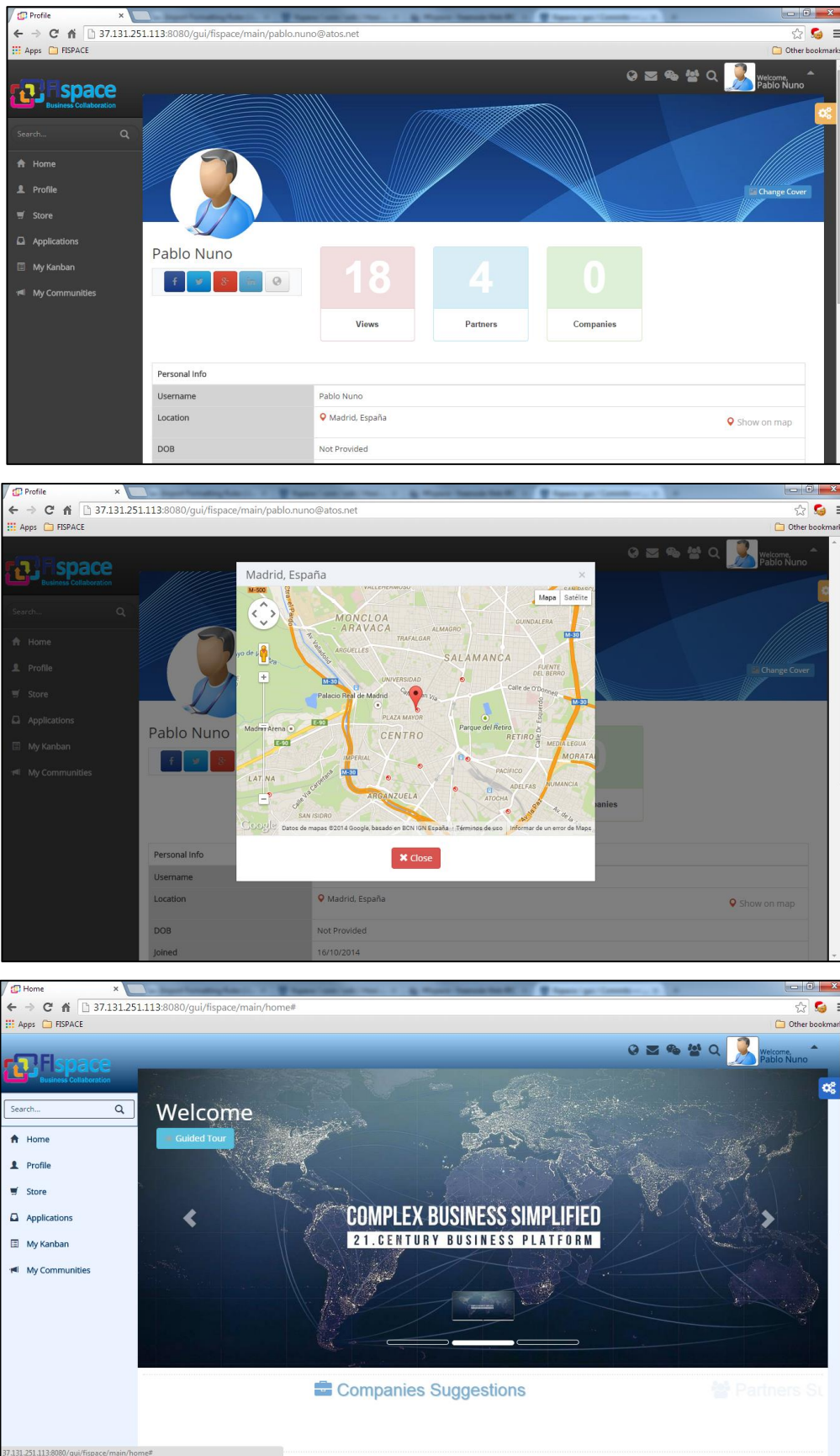


Figure 1: FIspace Front-End overviews

2.3 Login

The first step for a new FIspace User is the registration process. For this login process, FIspace front-end interacts with Keycloak IDM [21].

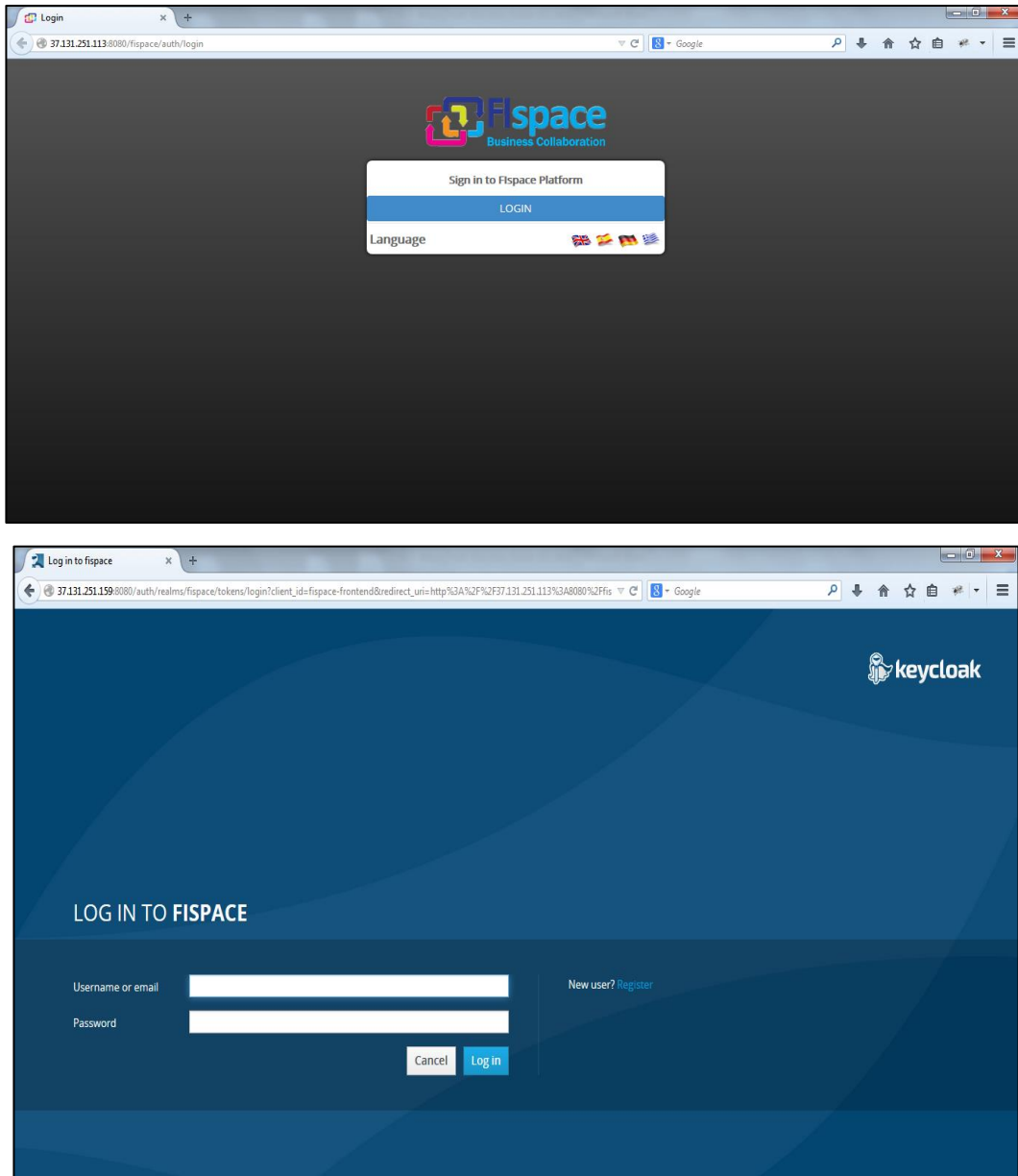


Figure 2: Login Page – Keycloak IDM

If it is the first time user try to access to FIspace, She/he needs to create a new user filling out the registration form.

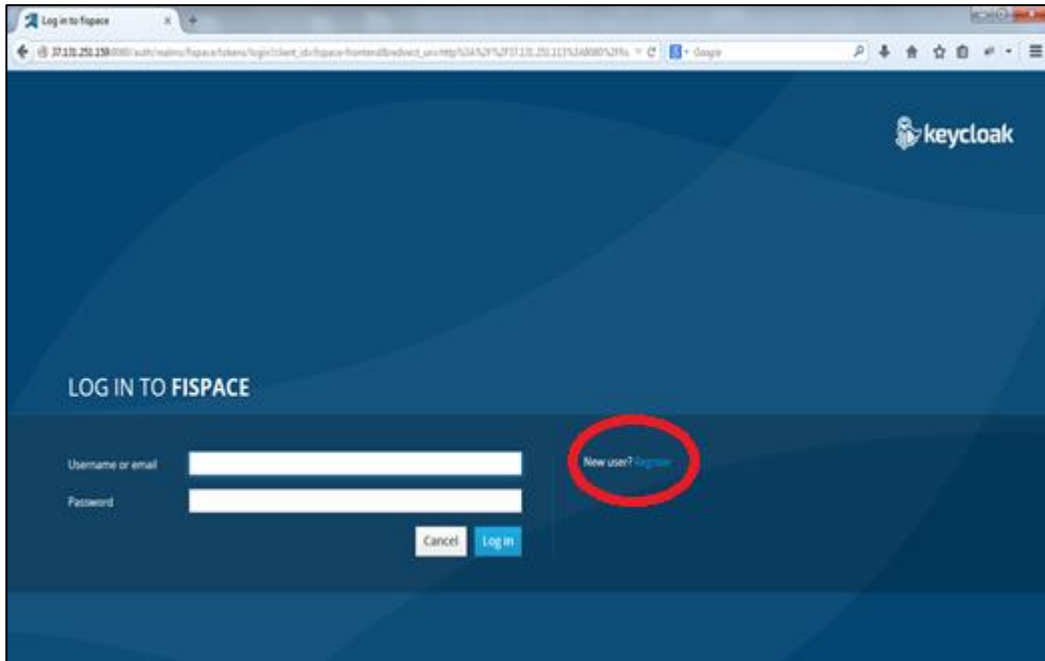


Figure 3: Login Page – Create Account

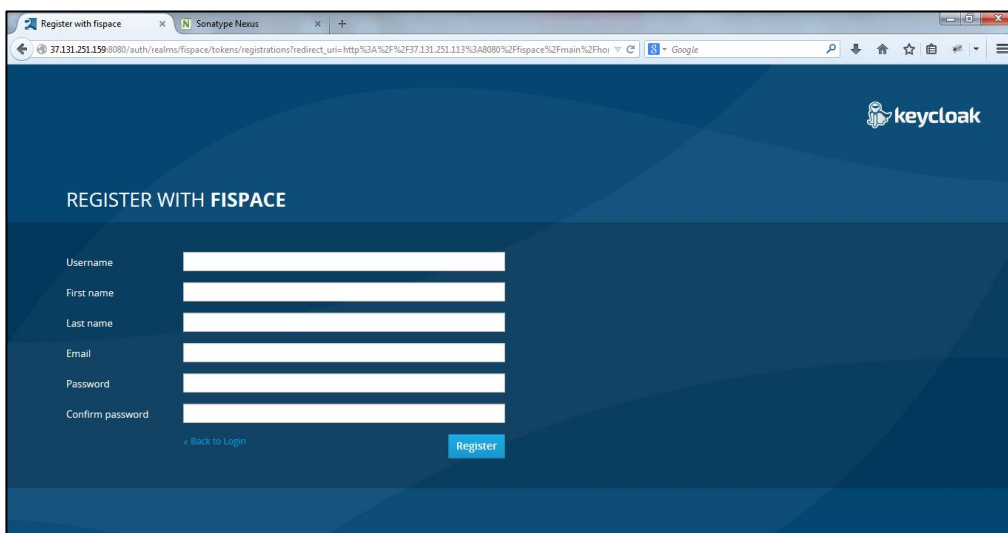


Figure 4: Registration Form

After the previous step, the user is redirected to the Front-End Home page.

2.4 User Profile

All FIspace users own a user profile inside FIspace Network. User can fill in some information about him in this profile that can be useful to contact with other users and start a partnership relation utilizing our platform.

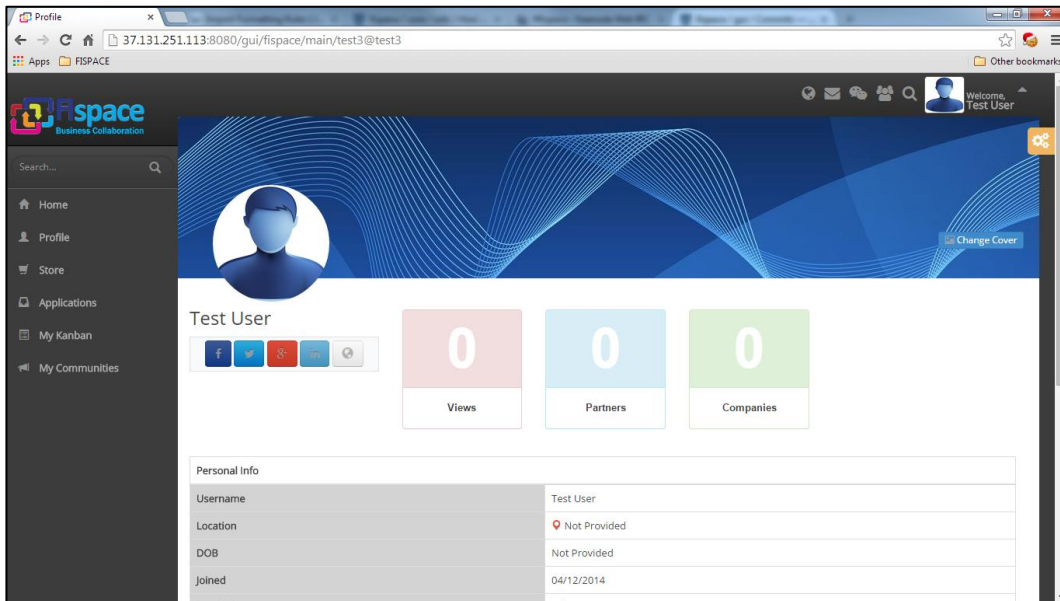


Figure 5: Profile Page

Our recommendation is to complete your profile as much as possible because this information is used in advanced search user. The more information show in your profile, the more search results you appears.

To introduce your information, users need to click in the option “Account”:

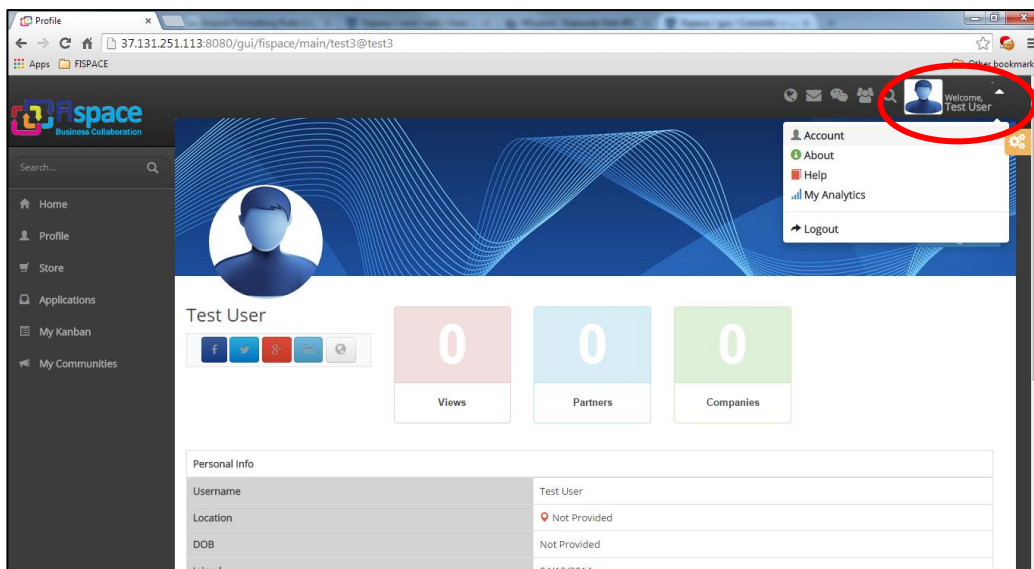


Figure 6: Top-bar Menu – Account Option

When user access to this option, a profile completion percentage is calculated to inform the user which is the state of his/her profile. User should fill in the information in the tabs below to increase their percentage.

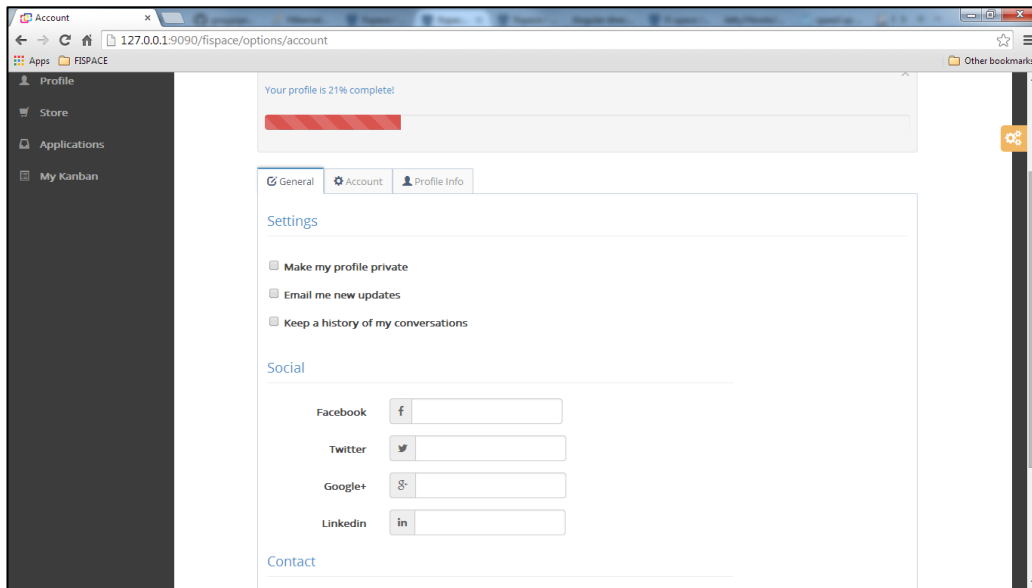


Figure 7: Account Page – General Tab

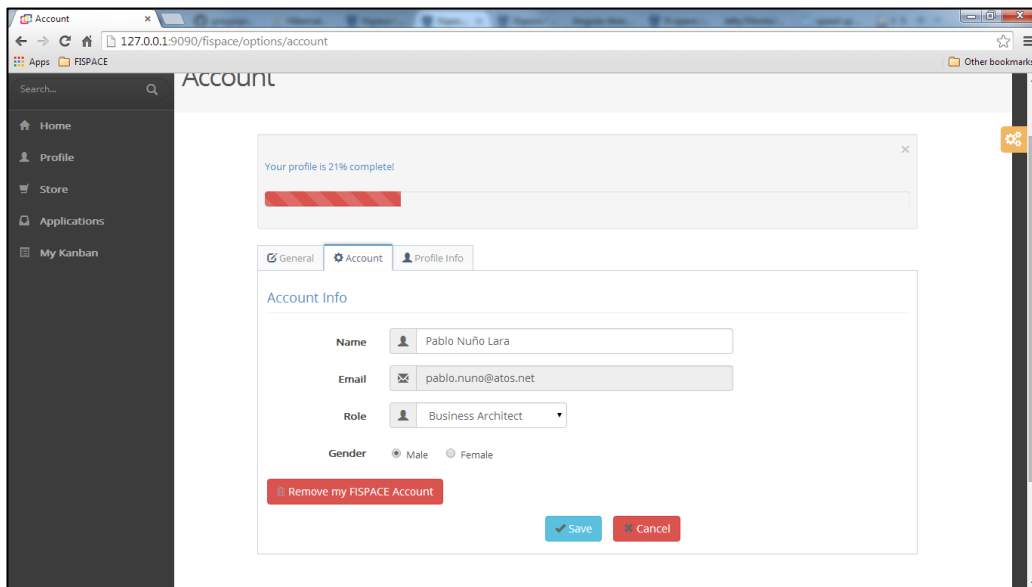


Figure 8: Account Page – Account Tab

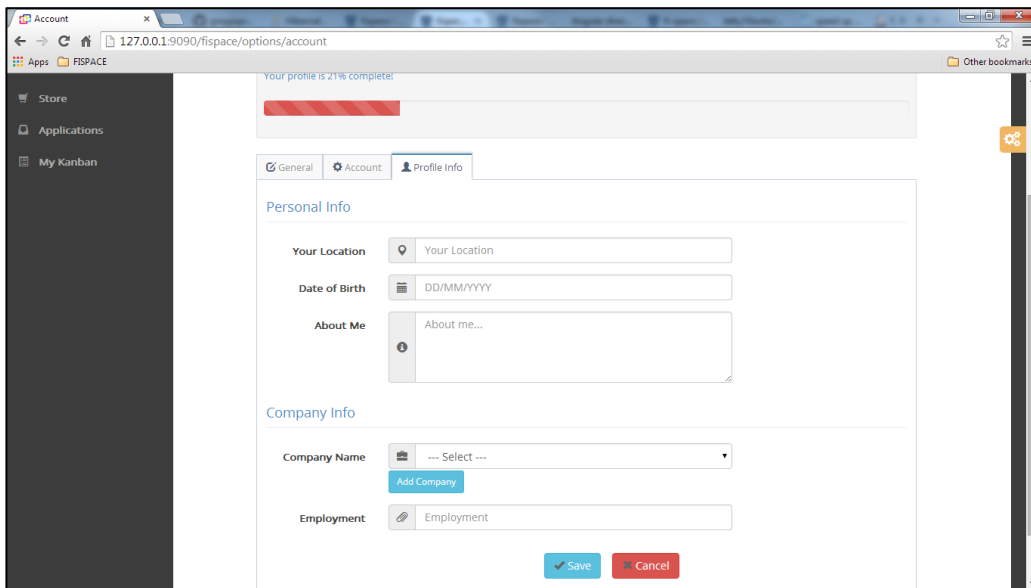


Figure 9: Account Page – Profile Info Tab

Lastly, User can customize his/her profile and cover picture clicking the buttons marked with the red circle:

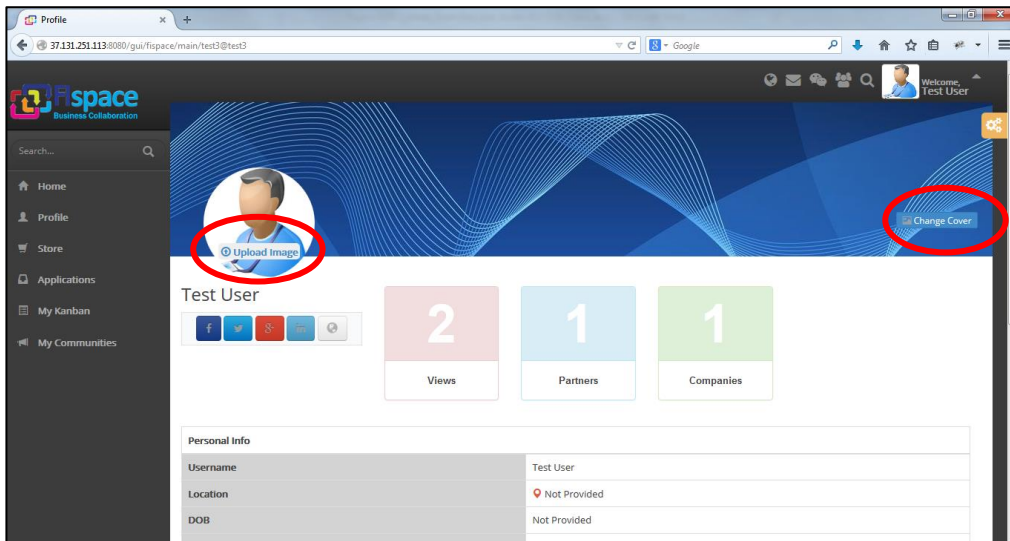


Figure 10: Update Profile Picture/Background buttons

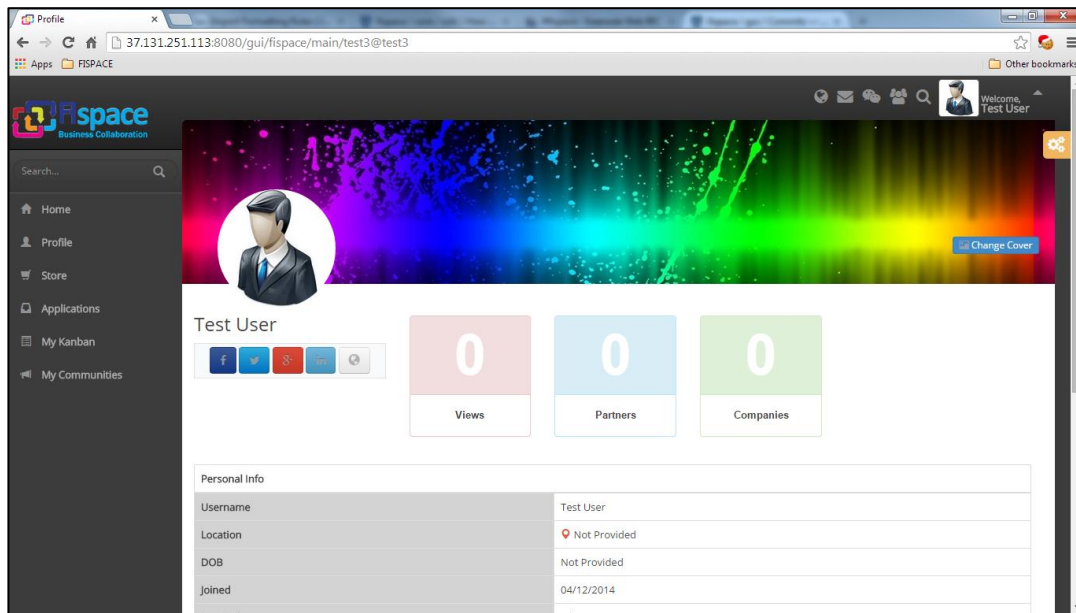


Figure 11: Profile page with loaded pictures

2.5 Company Profile

In FIspace Platform not only user profiles exist. Another type of profile can be created, the Company Profile.

All users can create a new Company profile. When a user generates this profile, automatically will be the administrator of it and his/her personal profile is added as follower.

To create a new Company Profile, users have to go to the account option and profile tab. When “Add Company” button is clicked users will be redirected to the “Register New Company” form.

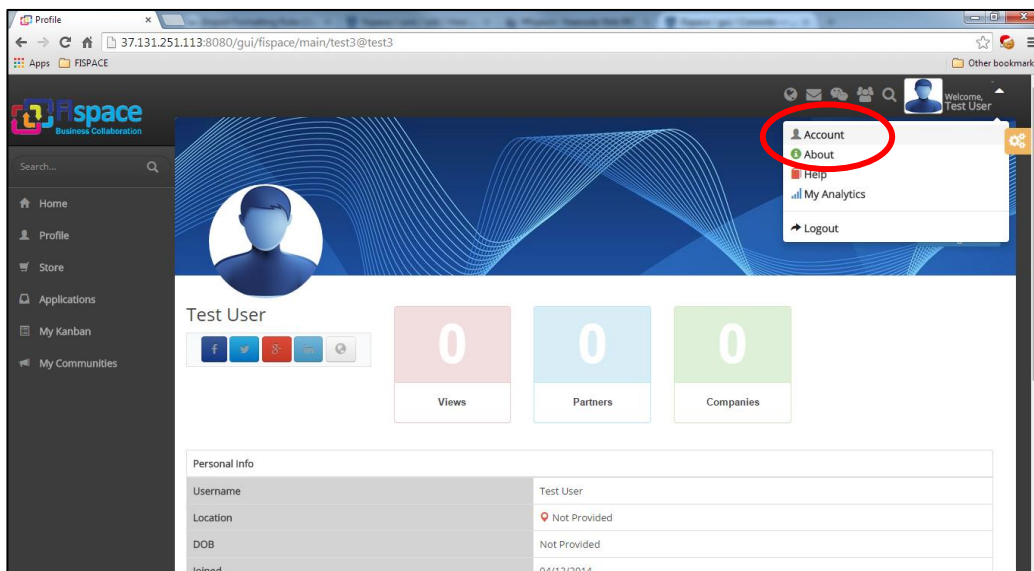


Figure 12: Top-bar Menu – Account Option

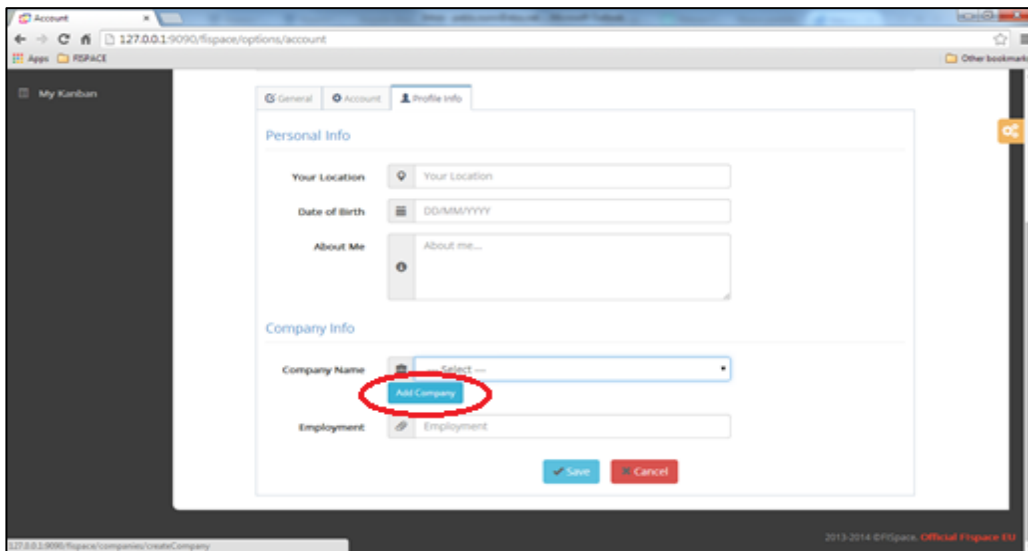


Figure 13: Add Company button

In this form is necessary to add all the information related with the company that is being created.

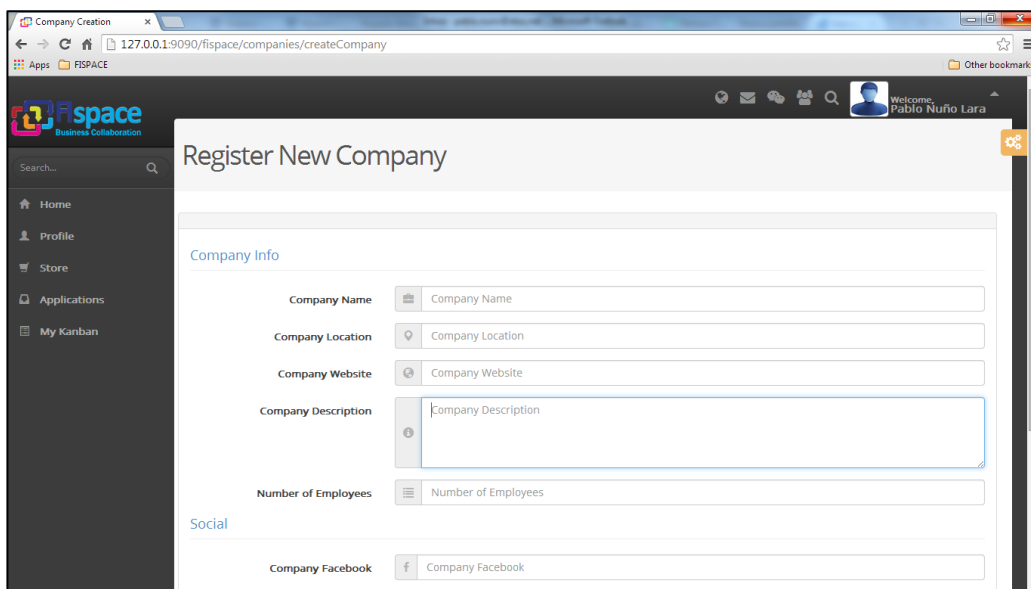


Figure 14: Registration Company Form

After complete the previous form and click “Save” button the company profile is created.

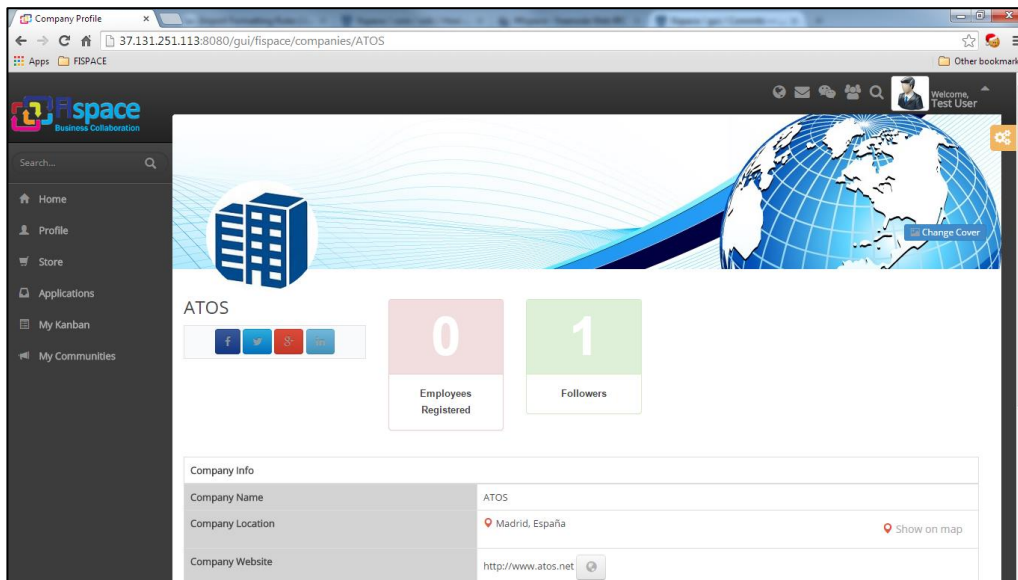


Figure 15: Company Profile Page

If Users want to edit a Company Profile he/she must be administrator of that Company profile.

If that were the case, when a user access the “account” option a new tab will be visible which is called “company profile info”. Within this tab a user may choose a company profile out of those which have already been created by this specific user.

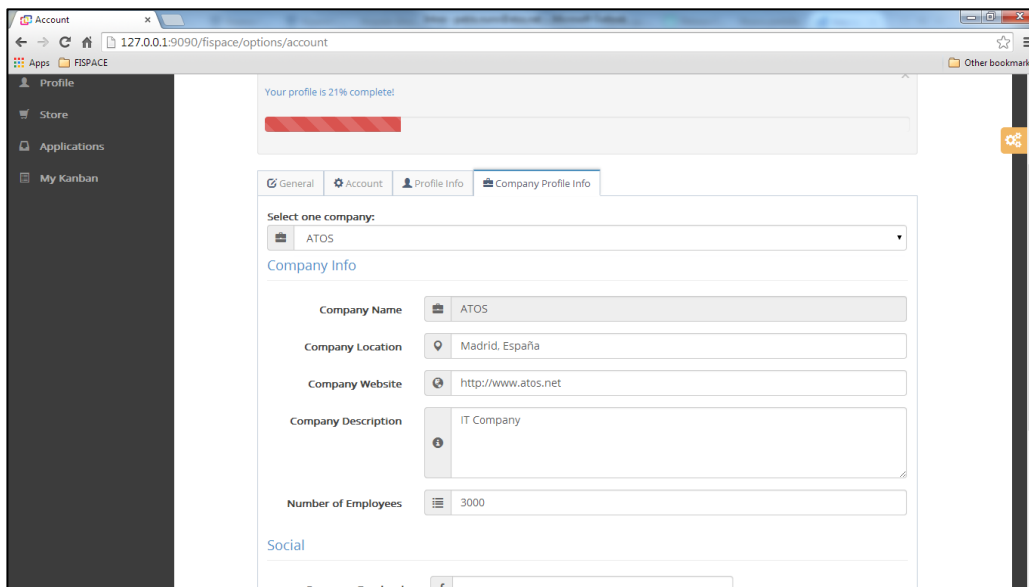


Figure 16: Account Page – Company Profile Info Tab

Finally, the Company Profile administrator can customize a company profile and a cover picture by clicking the buttons marked with the red circle:

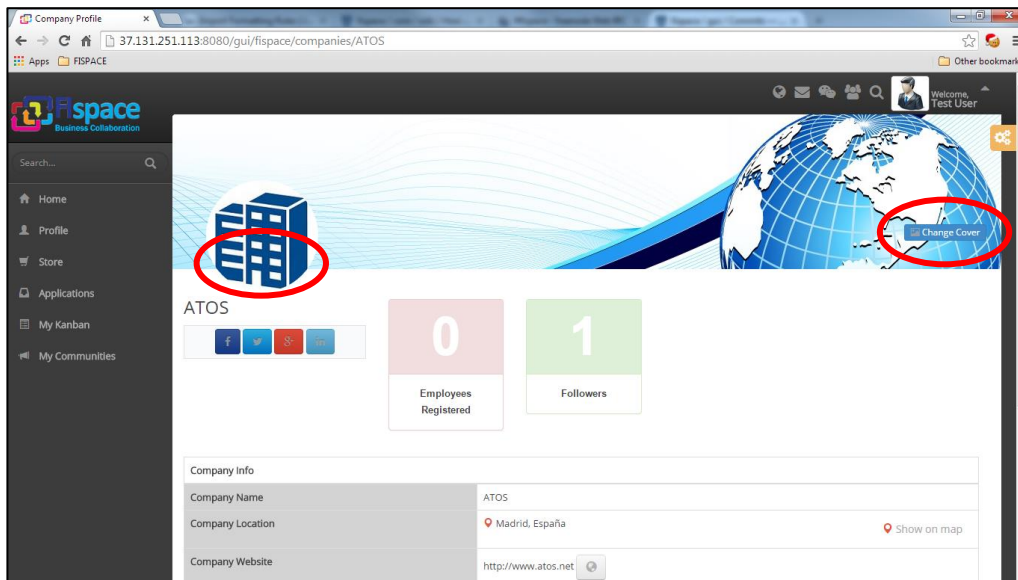


Figure 17: Update Company Profile Picture/Background buttons

2.6 Add another user as Partner

First step to add another as partner is to find our future partner profile. For this purpose Users can use the search bar in the sidebar menu entering his/her name in specific field.

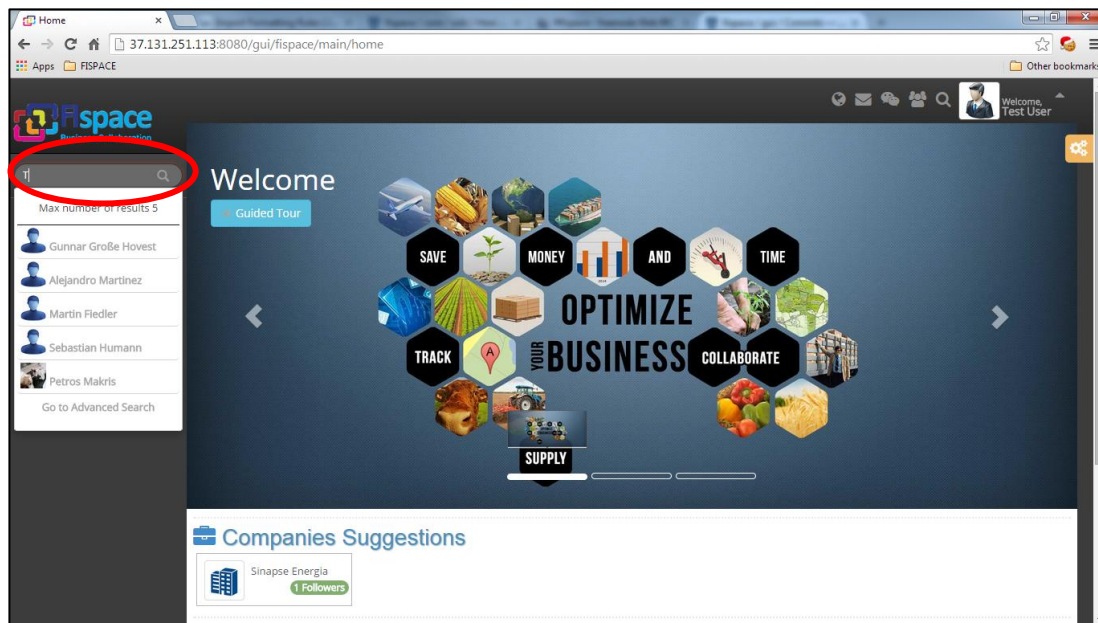


Figure 18: Sidebar Search option

When a user clicks a name he/she is redirected to his/her profile. To invite this user being your partner the “Add Partner” button has to be clicked.

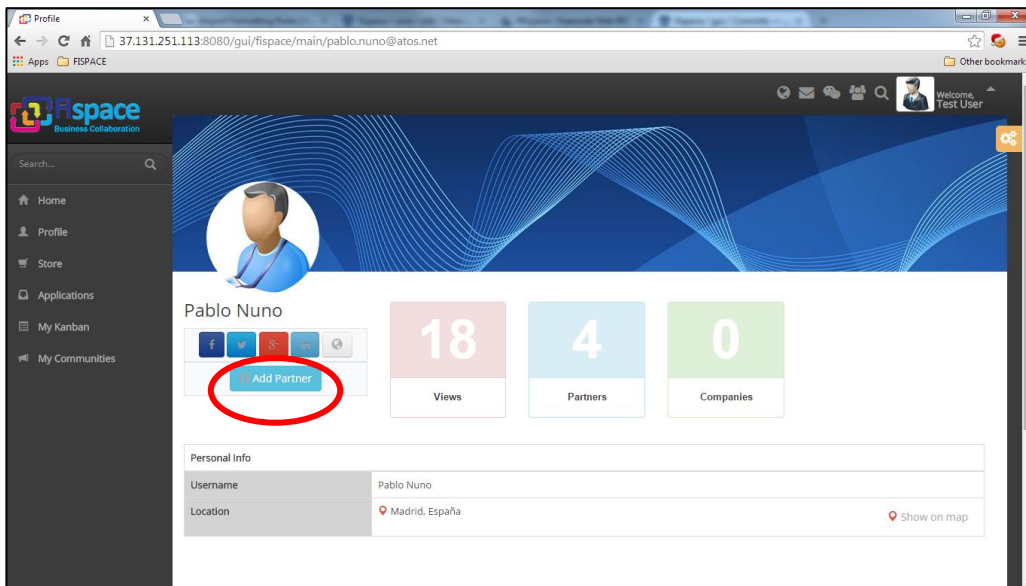


Figure 19: Add partner button

This process will generate a notification and a partnership request to the invited user notifying him/her that another user wants to add him/her as partner. He/she has to click the “Partnership Request” button to accept or reject the request.

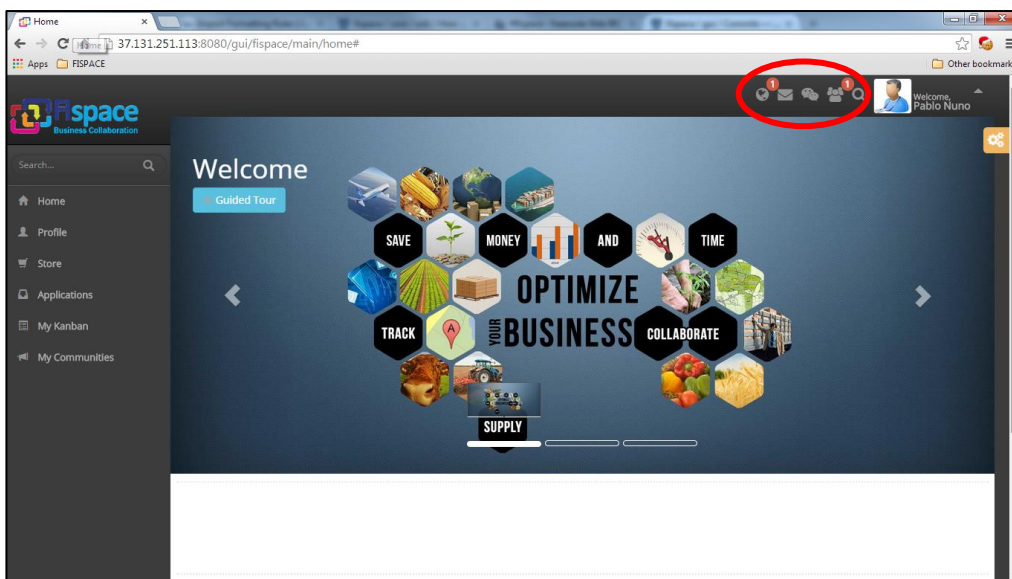


Figure 20: Partnership request icon

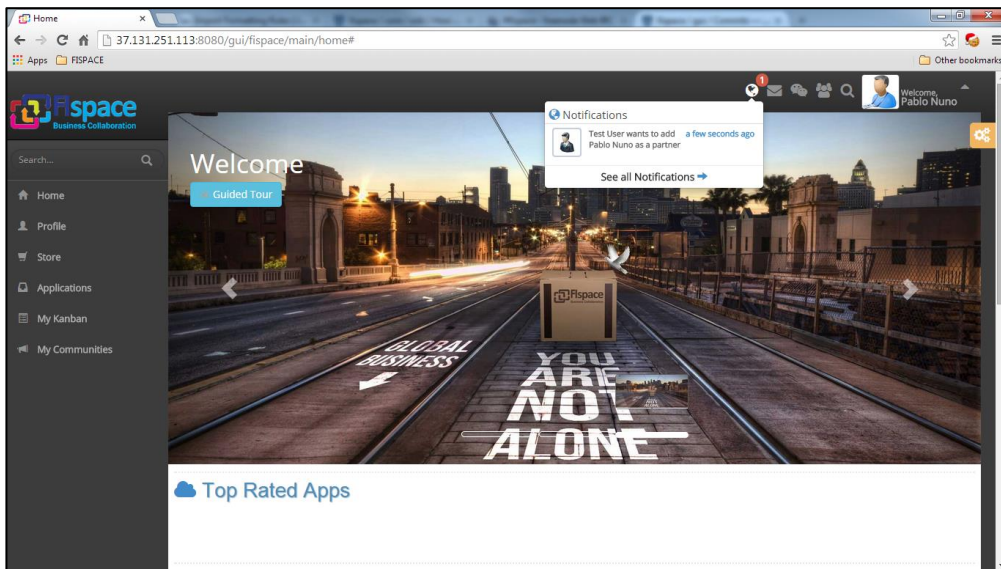


Figure 21: Notification received

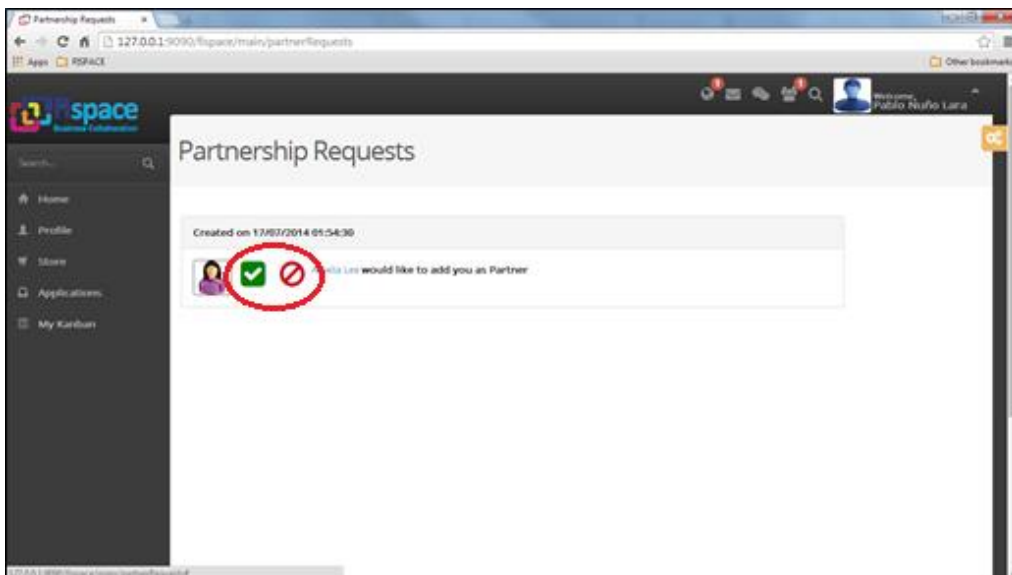


Figure 22: Partnership requests page

When the partnership request is accepted or rejected, a notification is received by the requestor.



Figure 23: FIspace Notifications Icon

After this process the new partner is going to be shown in the partners panel inside his/her personal profile.

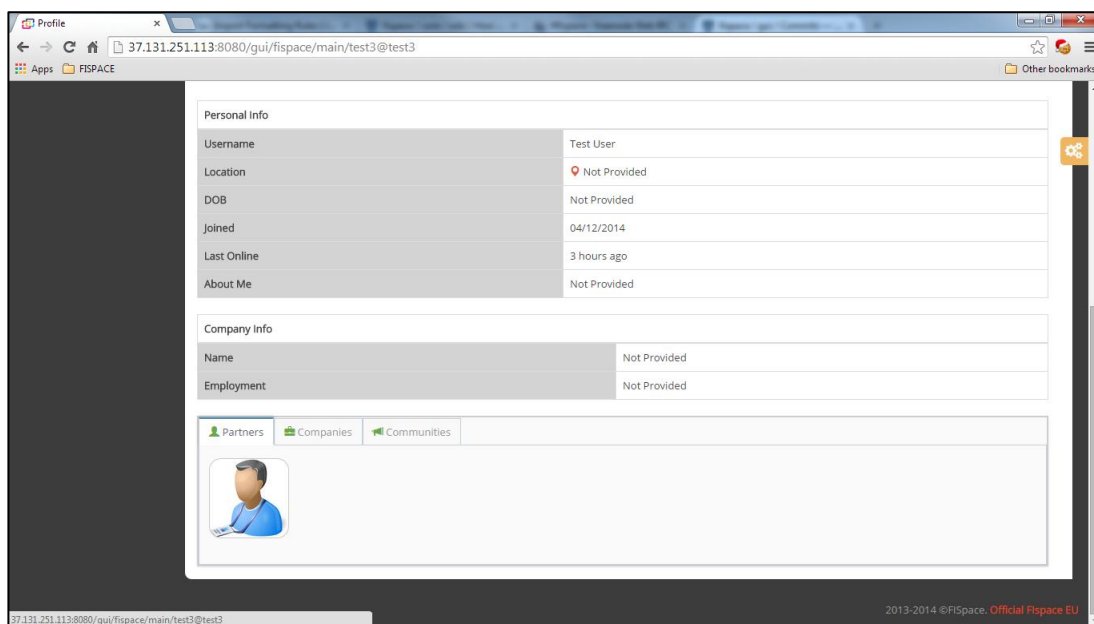


Figure 24: Partners Panel

2.7 Follow a company

First step to follow a company is to find the company profile. For this purpose Users may use the search bar in the sidebar menu writing the company name there.

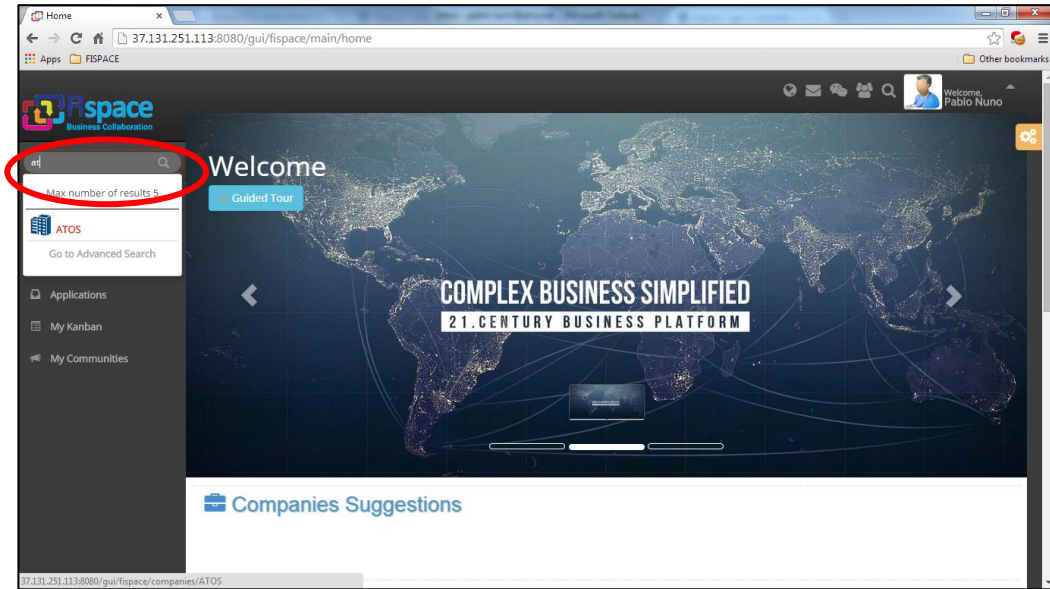


Figure 25: Sidebar Search option

When a user clicks the name it is redirected to its profile. To follow this company the “Follow Company” button has to be clicked.

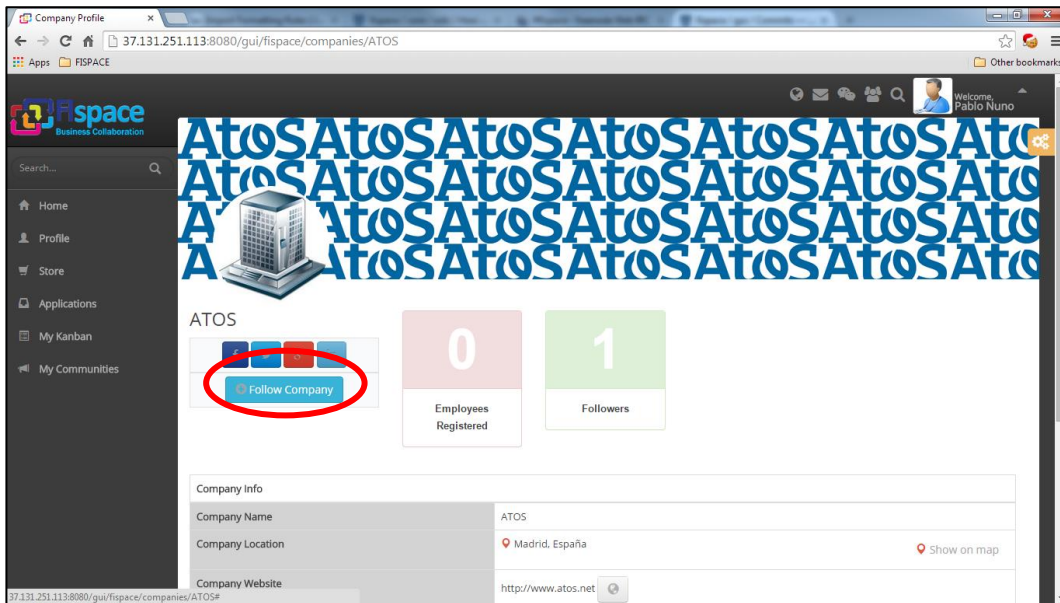


Figure 26: Follow Company Button

After this process, the new follower is going to be shown in the followers panel inside the company profile.

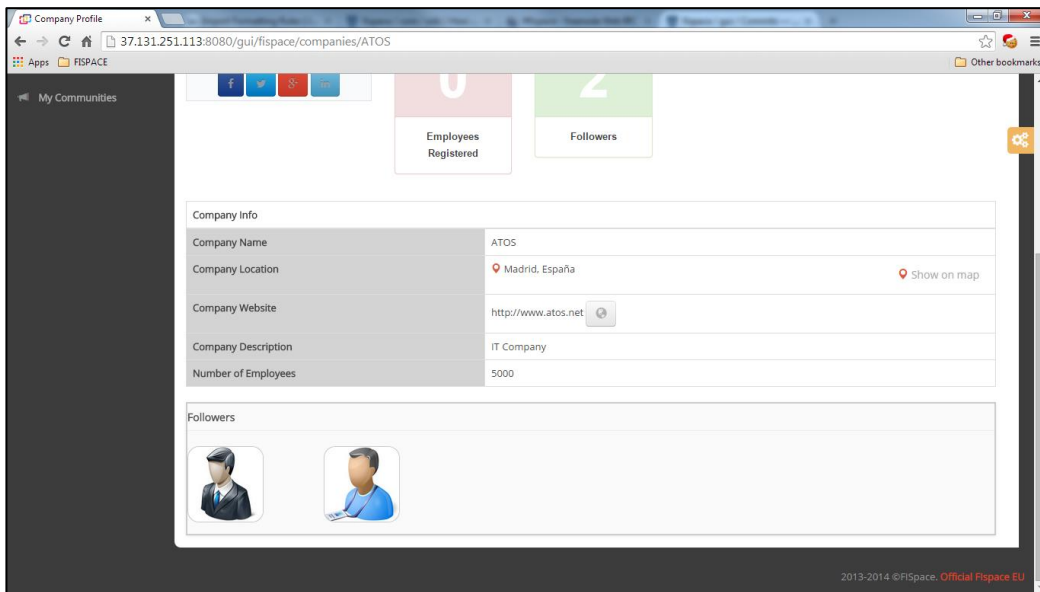


Figure 27: Followers Panel

Also the new company followed is going to be shown in the companies panel inside the user personal profile.

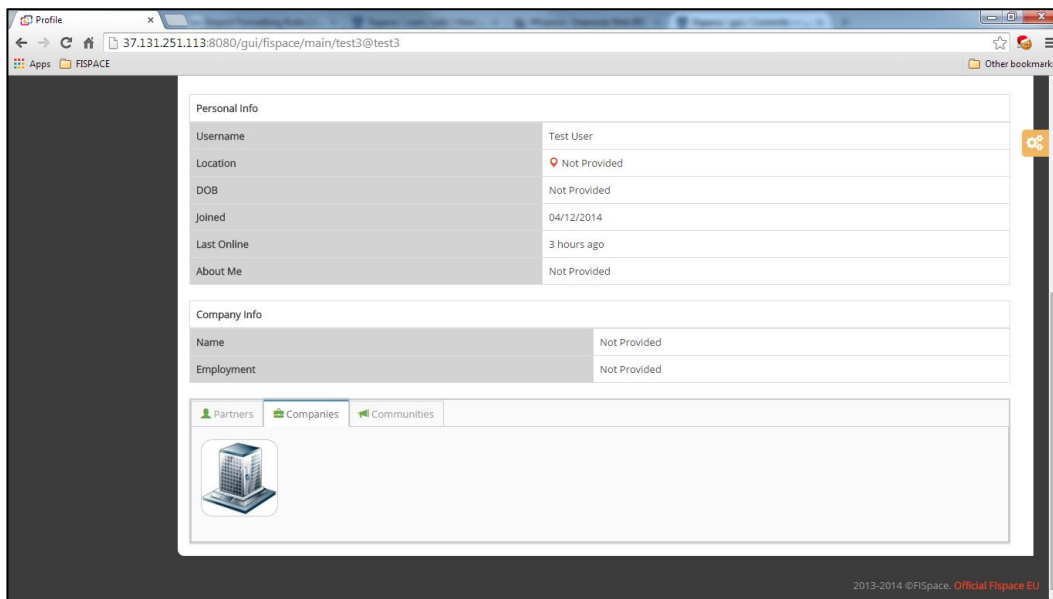


Figure 28: Companies Panel

2.8 Chat & Internal Mail

In order to facilitate the interaction between different Flspace users two different communication channels are provided.

The first one is the Chat functionality. The User selects another user from the connected partners list starting a conversation with him/her.

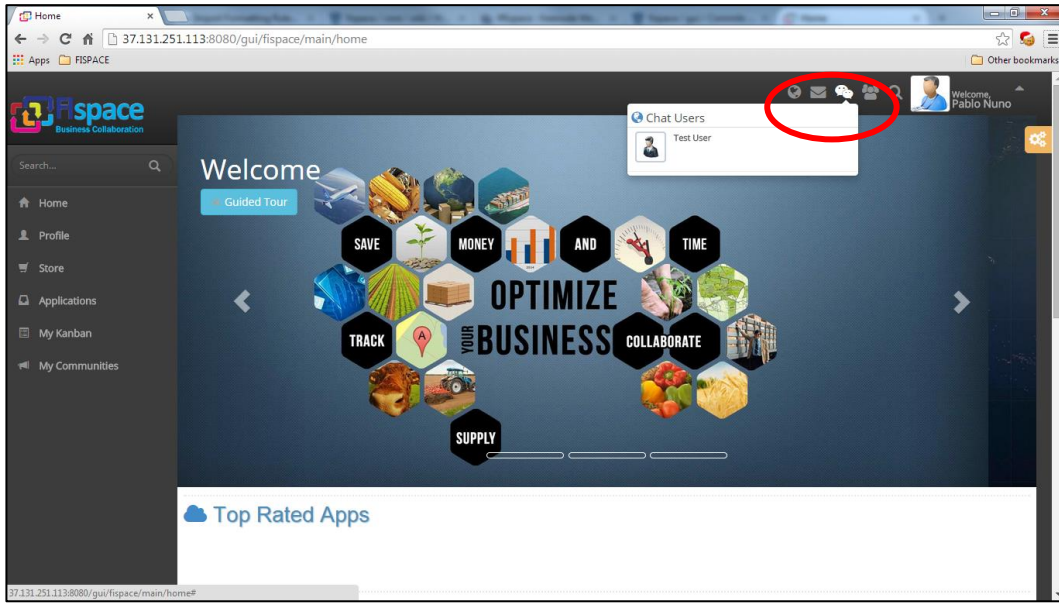


Figure 29: Online Chat Users panel

Once a partner is selected a conversation panel appears on the right side of the screen.

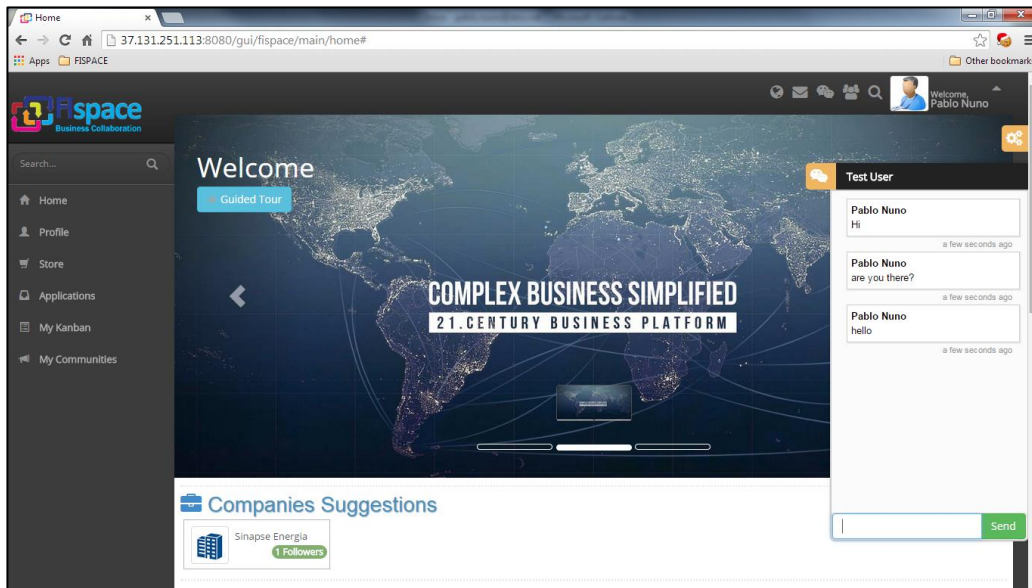


Figure 30: Chat Conversation panel

The second one is the Internal Mail functionality. To access to this functionality, users need to click the envelope icon in the top bar.



Figure 31: Internal Messages Icon

Once “Compose New” is clicked a form is shown to create a new message. After creating a message, it can be sent or stored as draft.

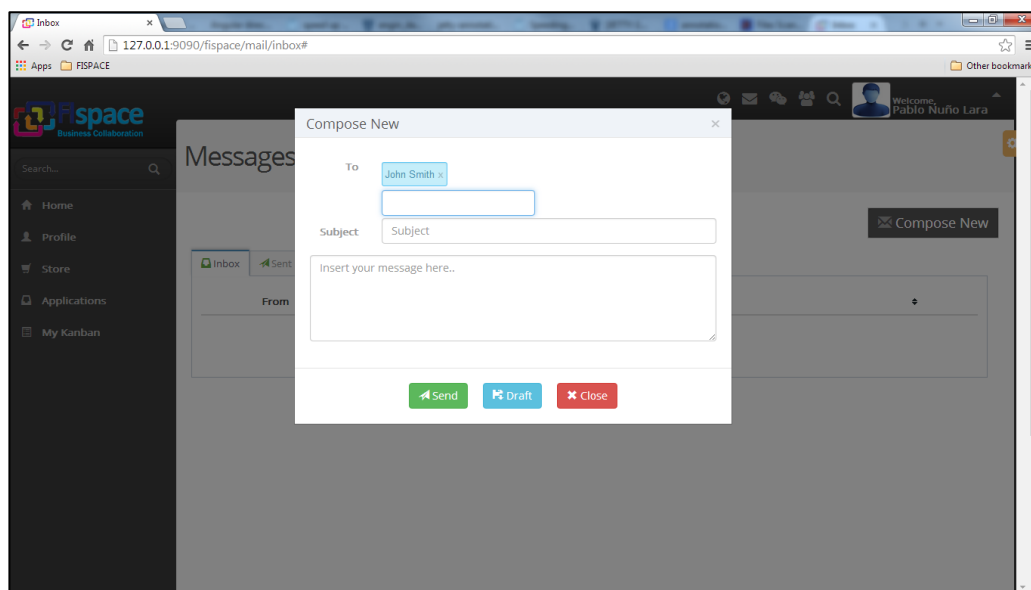


Figure 32: New Message form

In the Messages panel different tabs are shown depending on the type of the message. Received messages can be marked as “Favourite”, archived them or categorized them as “Work/Personal/To Do”. Depending on these actions, messages are going to appear in one or more tabs.

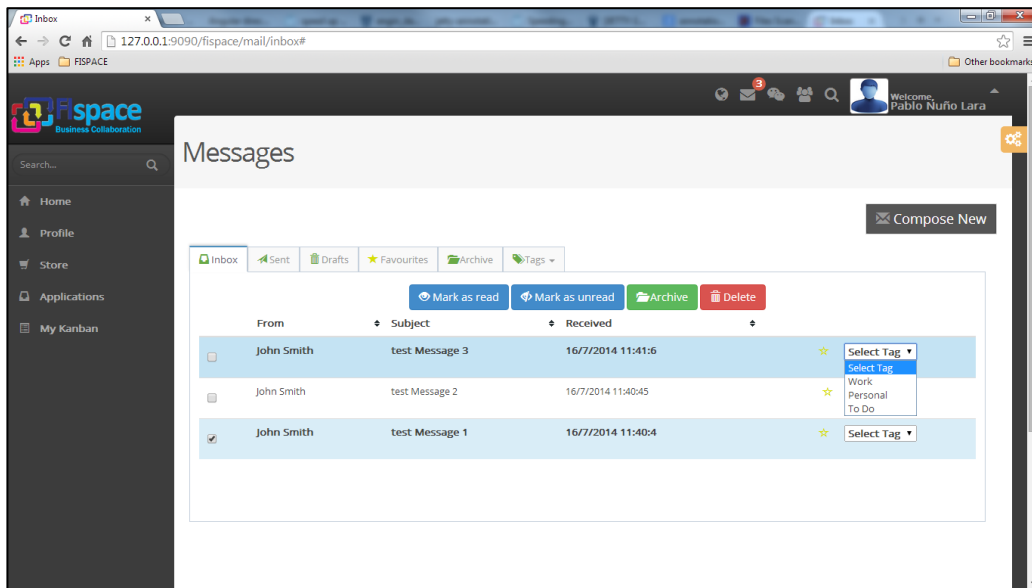


Figure 33: Messages Page

2.9 Language and Flspace customization

Users can customize the Flspace language and theme.

English, Spanish and Greek are offered but more languages are going to be available in future versions. In the same way, 5 themes are available (Black, Blue, Red, Green and Orange) in order to modify the visual aspect of Flspace Front-End.

The theme Options panel is shown when the “Gear” icon (orange color) is clicked, located at the right side of the window frame.

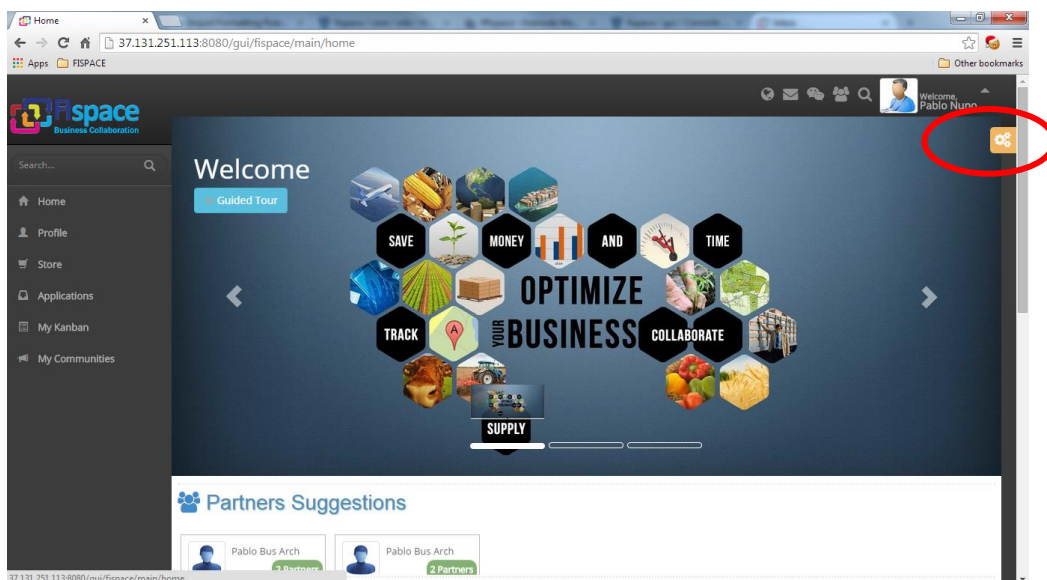


Figure 34: Customization Panel Button

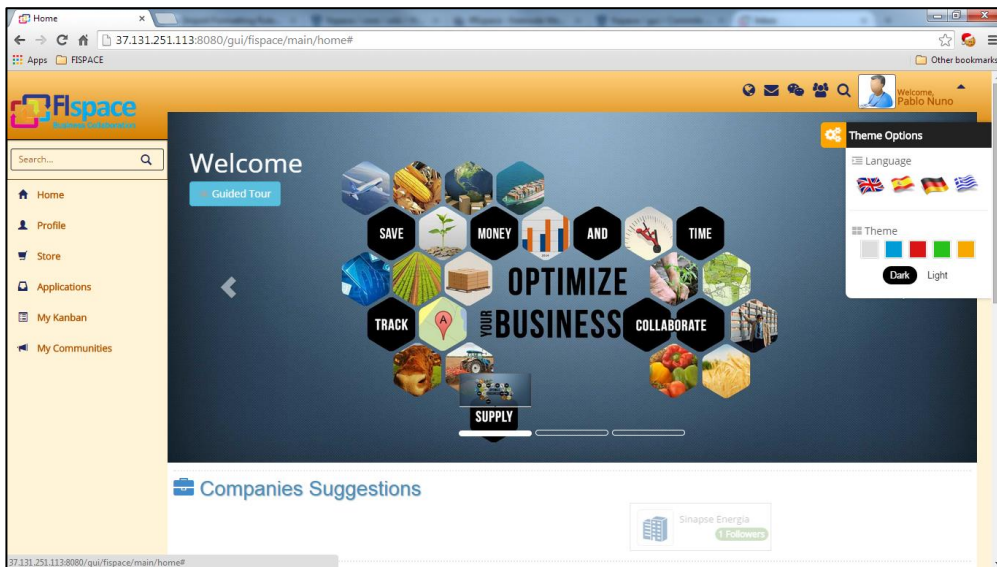


Figure 35: Home page (Orange theme)

2.10 FIspace News

On the FIspace home page users will find the news section. In this section, a user can read all the news published by his/her partners or by the companies that he/she is following.

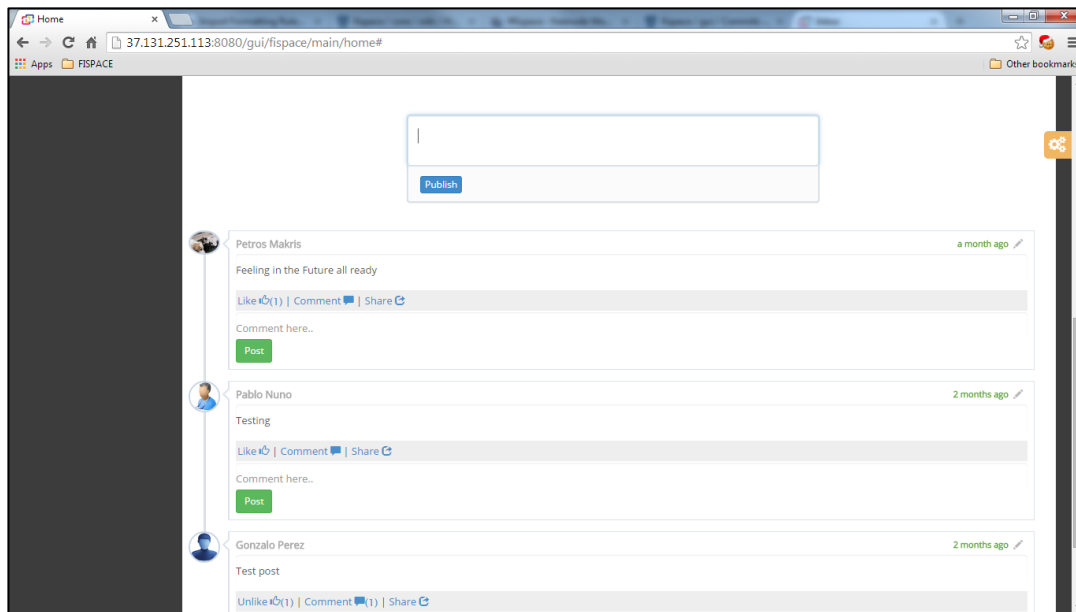


Figure 36: News Panel

For publishing news, users have to write a message in the box. When this box is clicked the publish button appears. In case the user is company profile administrator, also a drop-down menu is shown, offering the opportunity to publish the news as user or as company.

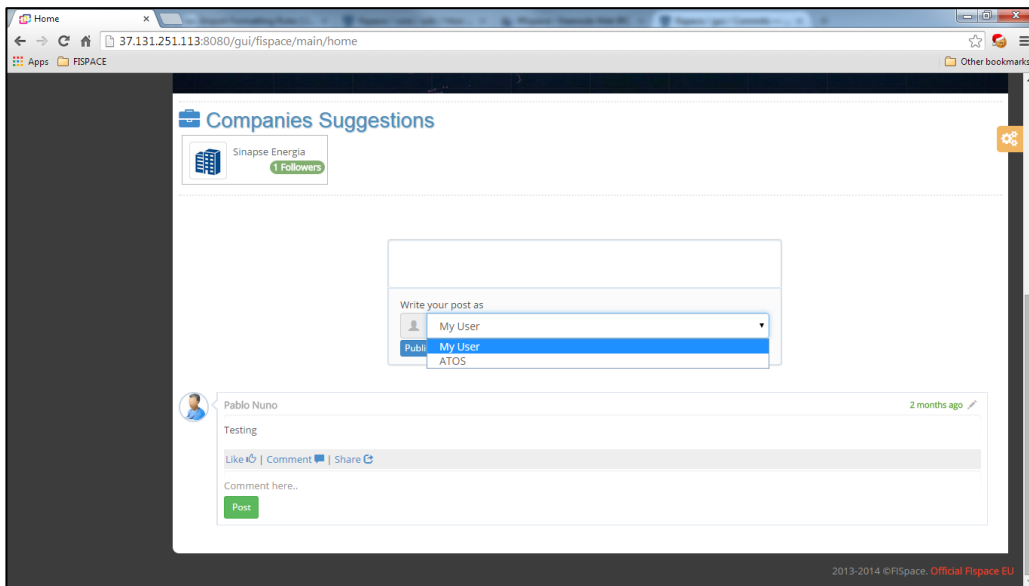


Figure 37: New post panel

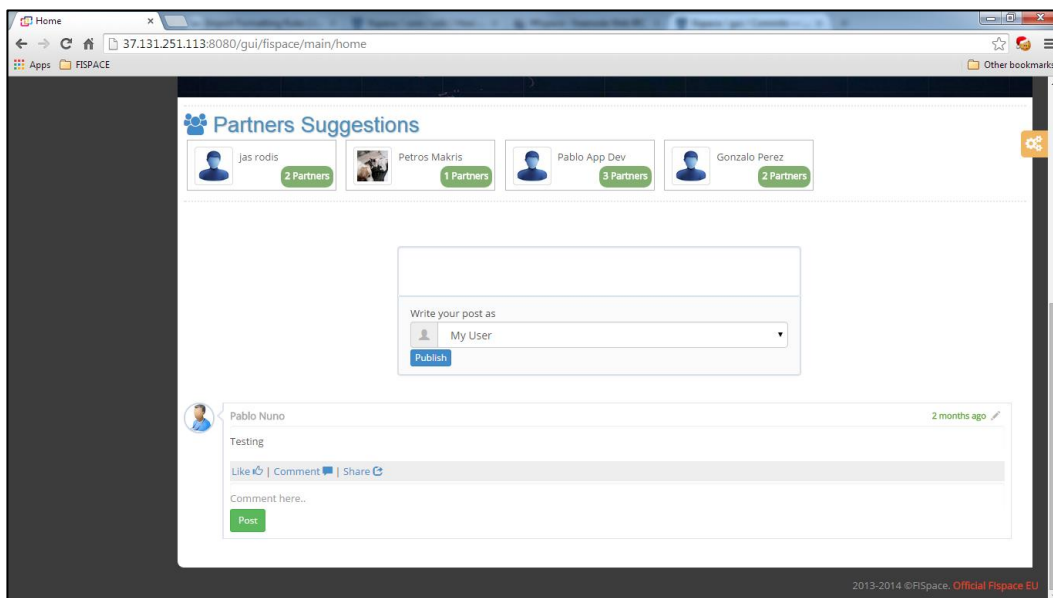


Figure 38: Post published example

For each publication the following functionality is available:

- **Like:** To emphasize that you like this new.
- **Comment:** To add comments about a publication.
- **Share:** To share the content of that publication in a new post.



Figure 39: Like/Comment/Share Buttons

2.11 Advanced Search

In order to help users to find other FIspace users and companies not only using their names an advanced search is provided.

Users need to click the magnifying glass icon to access the search form.

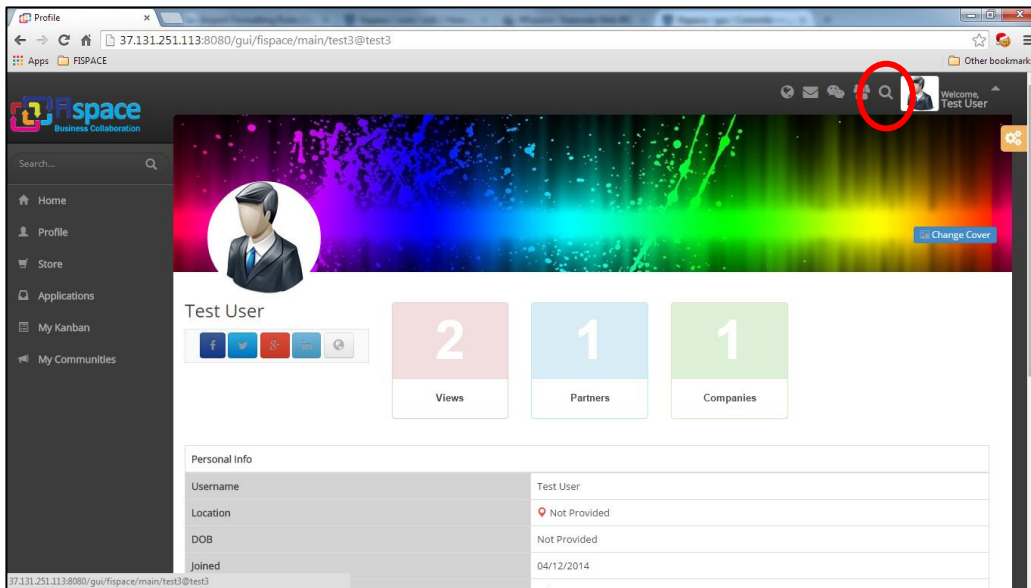


Figure 40: Advanced Search icon

All the search results are going to be listed under the form.

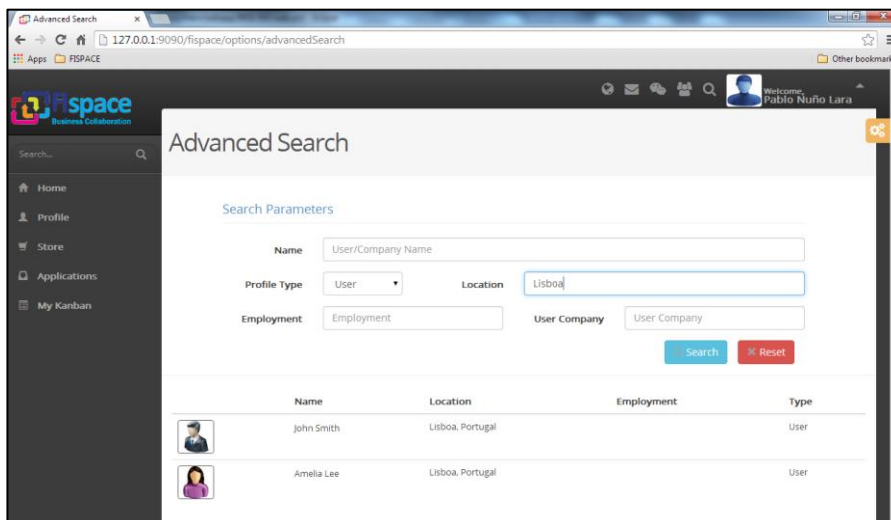


Figure 41: Advanced search form

2.12 Guided Tour

On the FIspace home page users will find a Guided Tour option.

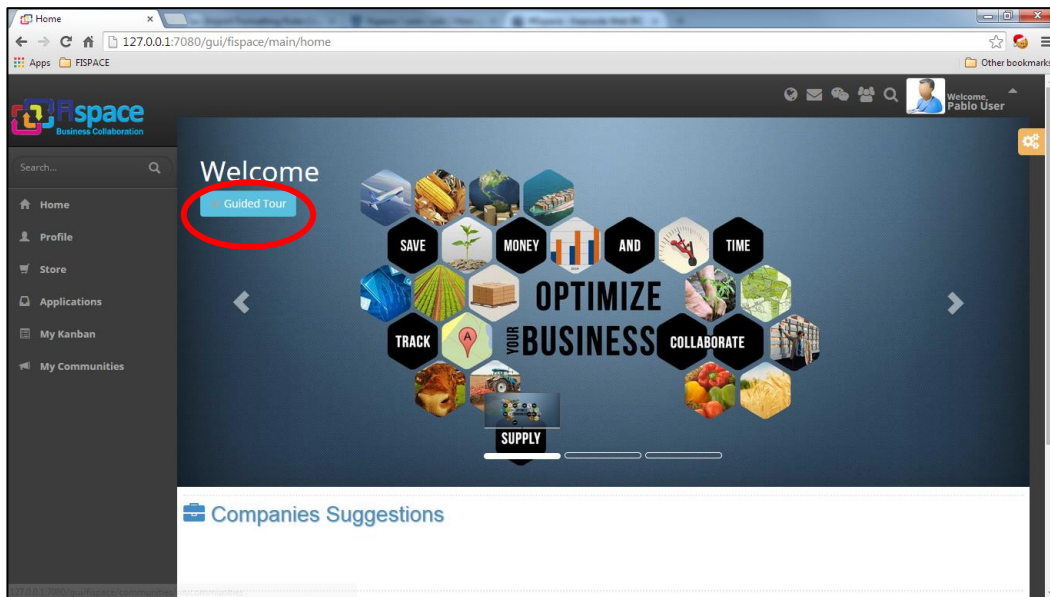
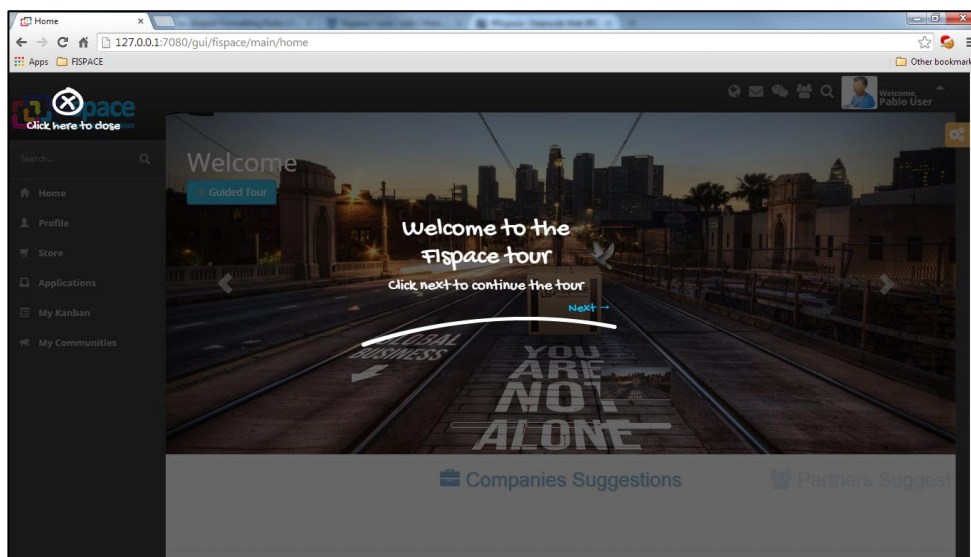


Figure 42: Guided Tour Button

This tour explains briefly every menu option in order to provide useful information to new user in the platform.



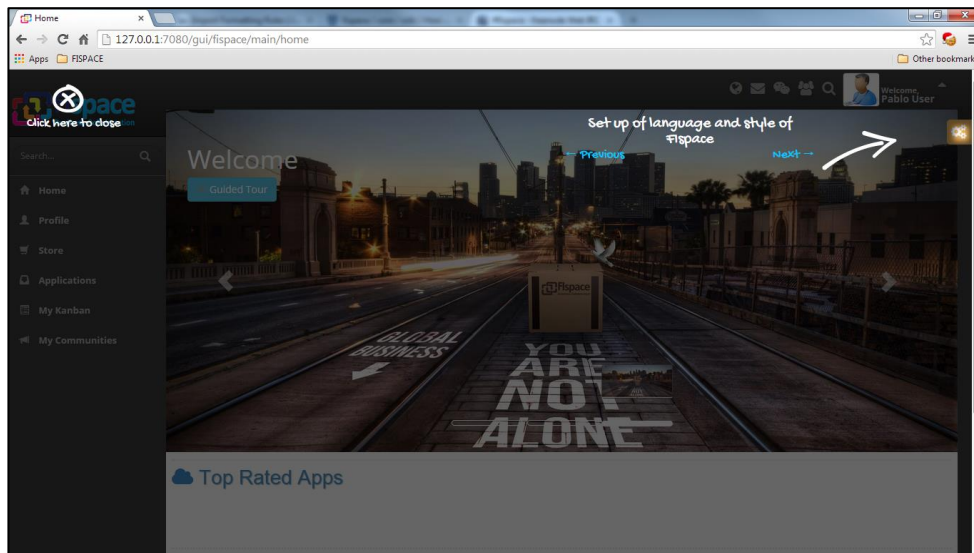


Figure 43: Guided tour screenshots

2.13 My Communities

In “My Communities” section user can see all the communities that he/she has joined. Communities are profiles that are created to share information related with the topic of the community.

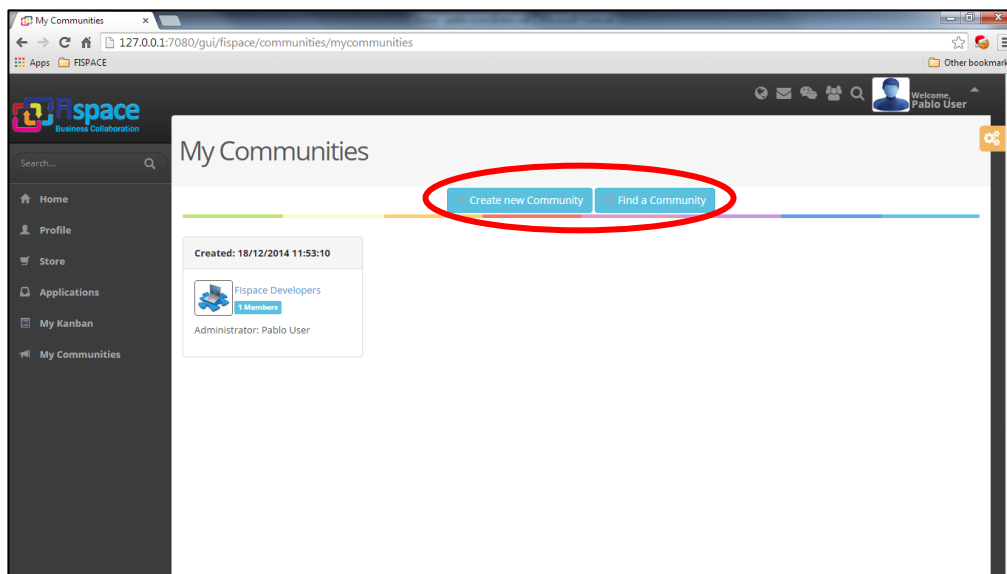


Figure 44: My Communities Page

Any user can create a new Community in Fispace. Automatically he/she will be Community Administrator. To create a new community only is necessary to fill out the following form.

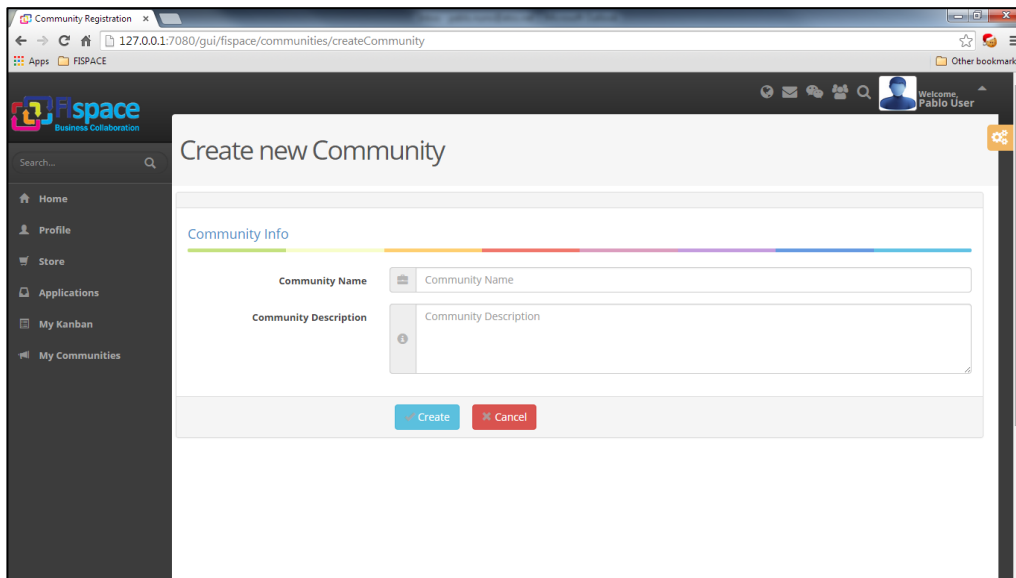


Figure 45: Creation Community Form

In the advanced search, previously described, is also possible to search communities.

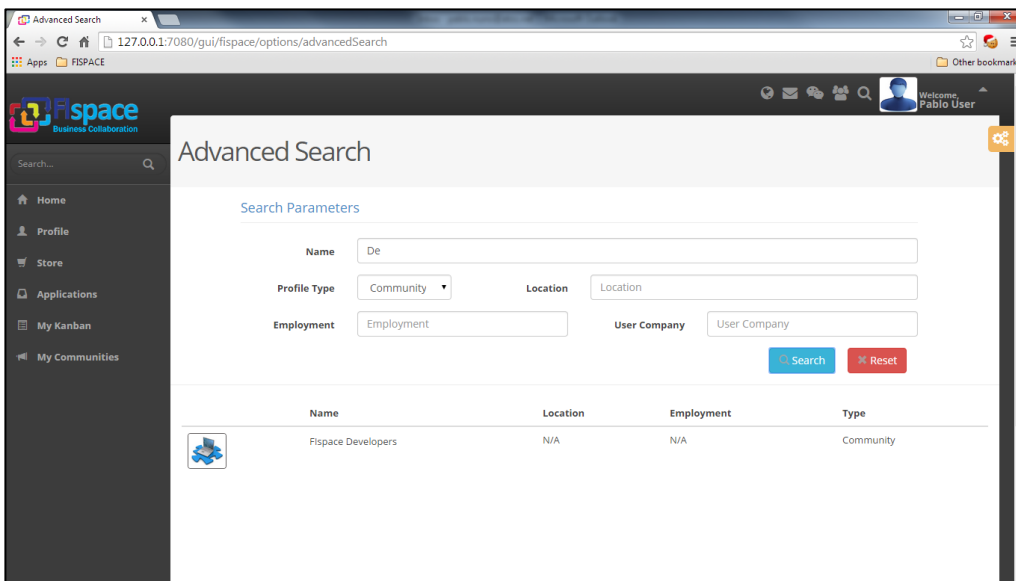


Figure 46: Advanced Search for communities

The behaviour related with community picture and background picture customization is similar to Company or User profiles.

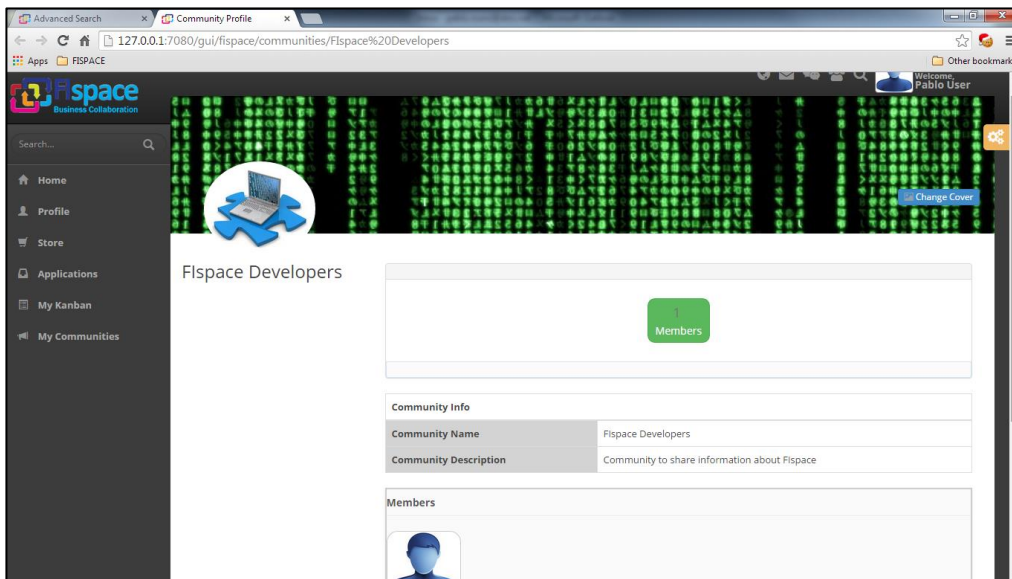


Figure 47: Community Profile page

What makes a difference between communities and other profile types is that in these profiles Users can post information with the rest of the members.

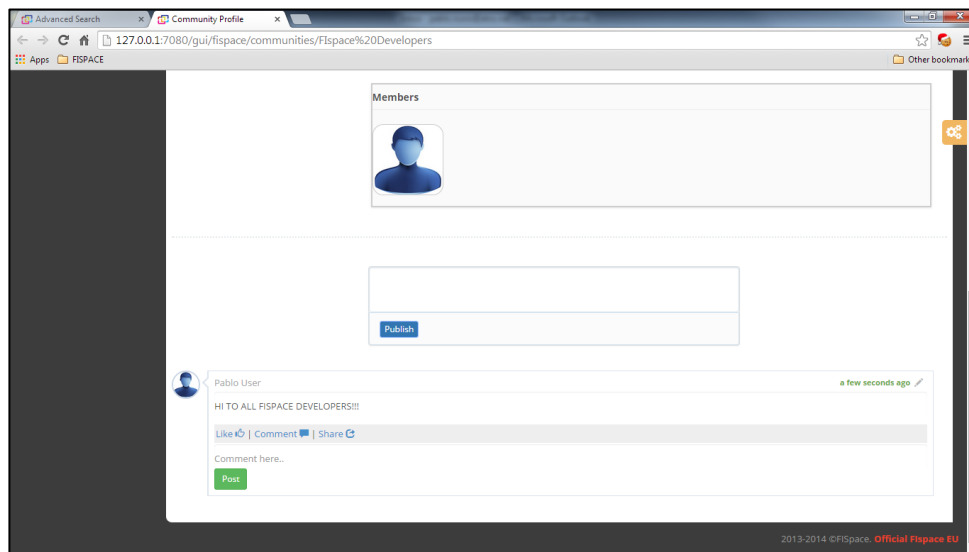


Figure 48: Post Information in a Community

2.14 Business & Capabilities

Depending on the Fispace user role a new icon is shown that provides access to “Business & Capabilities” section. Only users with “App Developer” or “Business Architect” roles can see this icon.

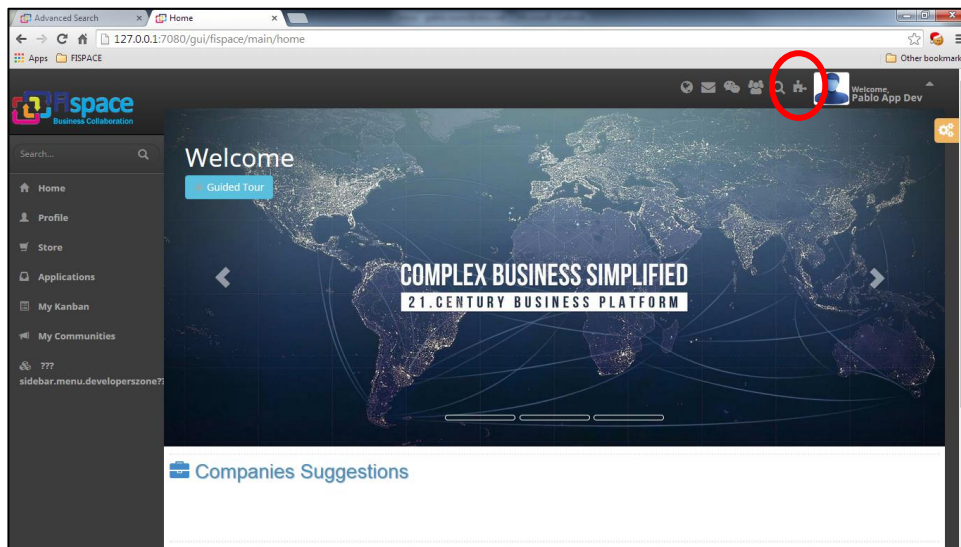


Figure 49: Business & Capabilities Button

From this page users can interact with Fispace B2B component and define different elements related with their app.

In the case of Business Architect users the following functionalities are enabled:

- Create Capability Type
- Create Business Process Template
- Remove Capability type
- Remove Business Process Template

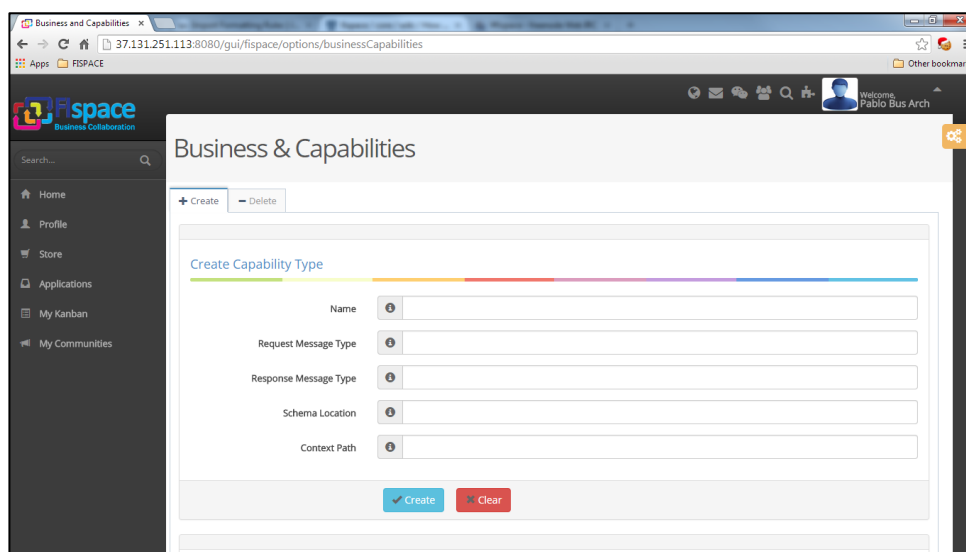


Figure 50: Business & Capabilities Page (Business Architect role)

In the case of App Developers users the following functionalities are enabled:

- Create Capability
- Create Business Process
- Remove Capability
- Remove Business Process

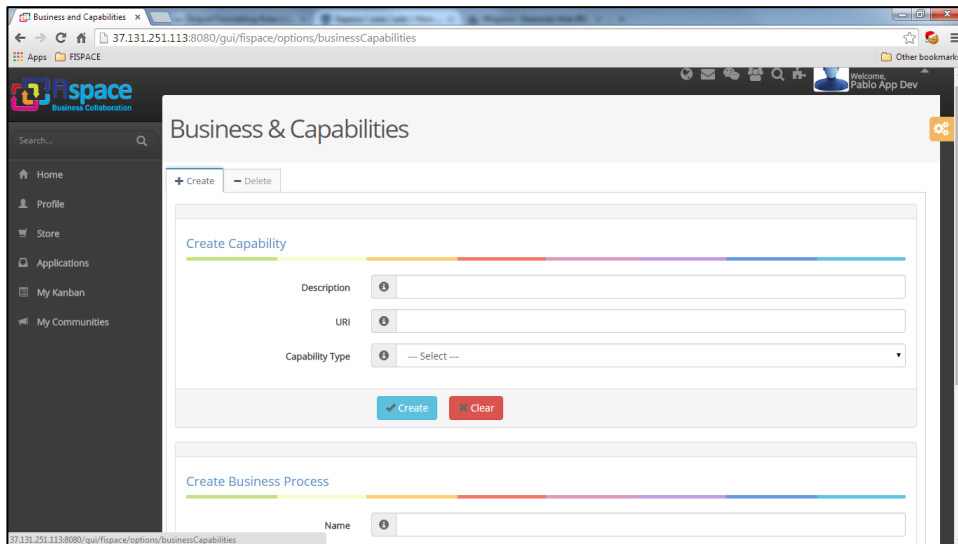


Figure 51: Business & Capabilities Page (App Developer role)

3 Glossary

The glossary provides the coherent terminological framework used in this document.

3.1 Terms and definitions

This section provides definitions of any terms that may be needed in order for the reader to understand the terminology used in the document. The author should define any definition/acronym or technical term used in the document that may be unfamiliar to the reader, and it is best to err on the side of too many rather than too few definitions. This also allows the author to frame a word within a specific context, which provides the reader with a common understanding of the author's definition.

Access control

Authorisation (or denegation) for performing a certain action (based on privileges management). The access control is carried out once the Identification and Authentication procedures have been performed.

Accounting

Process of gathering information about the usage of resources by subjects.

Acceptance and trust

Acceptability indicates the degree of approval of a technology by the users. It depends on whether the technology can satisfy the needs and expectations of its users and potential stakeholders. Within the framework of introducing new technologies, acceptability relates to social and individual aspects as well.

Application

Use of capabilities, including hardware, software and data, provided by an information system specific to the satisfaction of a set of user requirements in a given application domain.

Application Domain

Integrated set of problems, terms, information and tasks of a specific thematic domain that an application (e.g. an information system or a set of information systems) has to cope with.

Application Schema [ISO/FDIS 19109:2003]

Conceptual schema for data required by one or more applications.

Architecture (of a system) [ISO/IEC 10746-2:1996]

Set of rules to define the structure of a system and the interrelationships between its parts.

Architecture (of a system) [ISO/IEC 10746-2:1996]

Set of rules to define the structure of a system and the interrelationships between its parts.

Authentication

Process of verifying the identity of a certain subject. In other words authentication indicates whether a subject is who/what it seems to be.

Generally speaking, this proof can depend on a secret that can be, e.g. what somebody has (key, smart card, ...), what somebody knows (password, ...), what somebody is (biometrical data, ...)

Authorisation

Process of determining whether a subject is allowed to have the specified types of access to a particular resource. This is done by evaluating applicable access control information contained in a so called authorisation context. Usually, authorisation is carried out after the identification and authentication. Once a subject is identified and authenticated, it may be authorized (or not) to perform different types of access.

Availability

Availability refers to the degree to which a system, subsystem, or equipment is in a specified operable and committable state at the start of a mission, when the mission is called for at an unknown, i.e., a random time. So, availability is the proportion of time that a system is in operating condition.

Capability

Capabilities are a set of functionalities, through a combination of software and hardware, used to provide services and data. They can reside in a system or for example in a terminal itself as embedded capabilities or they can be available through the network services and infrastructure and others communication technologies as external capabilities.

Catalogue [derived from <http://www.opengeospatial.org/resources/?page=glossary>]

Collection of entries, each of which describes and points to a feature collection. Catalogues include indexed listings of feature collections, their contents, their coverages, and of meta-information. A catalogue registers the existence, location, and description of feature collections held by an Information Community. Catalogues provide the capability to add and delete entries. A minimum Catalogue will include the name for the feature collection and the locational handle that specifies where these data may be found. Each catalogue is unique to its Information Community.

Certificate Authority

A Trusted Third Party, responsible for ensuring the binding between the public keys and the personal data of their respective owners.

Component

Hardware component (device) or Software Component.

Conceptual model [ISO/FDIS 19109:2003(E); ISO 19101]

Model that defines concepts of a universe of discourse.

Conceptual schema [ISO/FDIS 19109:2003(E); ISO 19101]

Formal description of a conceptual model.

Coverage [ISO 19123]

Function from a spatial, temporal or spatiotemporal domain to an attribute range. A coverage associates a position within its domain to a record of values of defined data types. Thus, a coverage is a feature with multiple values for each attribute type, where each direct position within the geometric representation of the feature has a single value for each attribute type.

Data acquisition

Methods of data acquisition include methods to collect background data, digitally acquire data from sensors, and subjective data (such as data acquired from questionnaires). In addition, data in the form of manually or automatically transcribed data and reductions of collected data is also considered sensor acquired data (but with a manual sensor – the analyst).

Description Logics

Family of logic based knowledge representation languages that are a decidable subset of first order logic with well-defined semantics and inferencing (problem decision procedures). In Description Logics, a distinction is made between the terminological knowledge and the assertional knowledge. This distinction is useful for knowledge base modelling and engineering: for modelling it is just natural to distinguish between concepts and individuals; for engineering it helps by separating key inference problems.

Digital Certificate

A kind of digital document that contains structured information about the identity of its owner along with her/his public key, signed all together with a Certificate Authority's private key.

Digital Signature

The encrypted form of a message with the private key of the owner, indicating in a secure way the creator of the message, as well as the identity of a signed data.

Encryption

The act of modifying the contents of a message in an algorithmic and secure way, so that it can not be observed or altered in while in transit.

End-User

All users that are involved in an application domain and that use the applications, the services built by the system users according to the system and service Architecture.

Feature [derived from ISO 19101]

Abstraction of a real world phenomenon [ISO 19101] perceived in the context of an Application. In this general sense, a feature corresponds to an "object" in analysis and design models.

Framework [<http://www.opengeospatial.org/resources/?page=glossary>]

An information architecture that comprises, in terms of software design, a reusable software template, or skeleton, from which key enabling and supporting services can be selected, configured and integrated with application code.

Generic

A service is generic, if it is independent of the application domain. A service infrastructure is generic, if it is independent of the application domain and if it can adapt to different organisational structures at different sites, without programming (ideally).

Identification

The identification process allows relating a person/device with the service environment. The “electronic identity” is something like a credential or a “business card”, suitable to be verified throughout the authentication process.

Implementation [<http://www.opengeospatial.org/resources/?page=glossary>]

Software package that conforms to a standard or specification. A specific instance of a more generally defined system.

Info-structure Service

Service that is required to operate a system oriented service in the sense that it plays an indispensable role in the operation of an architecture or system oriented service.

Interface [ISO 19119:2005; <http://www.opengis.org/docs/02-112.pdf>]

Named set of operations that characterize the behaviour of an entity.

The aggregation of operations in an interface, and the definition of interface, shall be for the purpose of software reusability. The specification of an interface shall include a static portion that includes definition of the operations. The specification of an interface shall include a dynamic portion that includes any restrictions on the order of invoking the operations.

Interoperability [ISO 19119:2005 or OGC; <http://www.opengeospatial.org/resources/?page=glossary>]

Capability to communicate, execute programs, or transfer data among various functional units in a manner that require the user to have little or no knowledge of the unique characteristics of those units [ISO 2382-1]. (<http://www.opengeospatial.org/ogc/glossary/i>)

Loose coupling [W3C; <http://www.w3.org/TR/2004/NOTE-ws-gloss-20040211/#loosecoupling>]

Coupling is the dependency between interacting systems. This dependency can be decomposed into real dependency and artificial dependency: Real dependency is the set of features or services that a system consumes from other systems. The real dependency always exists and cannot be reduced. Artificial dependency is the set of factors that a system has to comply with in order to consume the features or services provided by other systems. Typical artificial dependency factors are language dependency, platform dependency, API dependency, etc. Artificial dependency always exists, but it or its cost can be reduced. Loose coupling describes the configuration in which artificial dependency has been reduced to the minimum.

Middleware [<http://www.opengeospatial.org/resources/?page=glossary>]

Software in a distributed computing environment that mediates between clients and servers.

Open Architecture [based on (Powell 1991)] [22]

Architecture whose specifications are published and made freely available to interested vendors and users with a view of widespread adoption of the architecture. An open ar-

chitecture makes use of existing standards where appropriate and possible and otherwise contributes to the evolution of relevant new standards.

Operation [ISO 19119:2005; <http://www.opengis.org/docs/02-112.pdf>]

Specification of a transformation or query that an object may be called to execute. An operation has a name and a list of parameters.

Performance indicators definition (PI)

PIs are quantitative or qualitative measurements, agreed on beforehand, expressed as a percentage, index, rate or other value, which is monitored at regular or irregular intervals and can be compared with one or more criteria.

Platform (Service)

Set of infrastructural means and rules that describe how to specify service interfaces and related information and how to invoke services in a distributed system.

Reference Model [ISO Archiving Standards; <http://ssdoo.gsfc.nasa.gov/nost/isoas/us04/defn.html>]

A reference model is a framework for understanding significant relationships among the entities of some environment, and for the development of consistent standards or specifications supporting that environment. A reference model is based on a small number of unifying concepts and may be used as a basis for education and explaining standards to a non-specialist.

Reliability

Reliability is the ability of a system or component to perform its required functions in routine circumstances, as well as hostile or unexpected circumstances, under stated conditions for a specified period of time.

Resource

Functions (possibly provided through services) or data objects.

Service [ISO 19119:2005; ISO/IEC TR 14252; <http://www.opengis.org/docs/02-112.pdf>]

Distinct part of the functionality that is provided by an entity through interfaces.

REST

Representational state transfer (REST) is an abstraction of the architecture of the [World Wide Web](#); more precisely, REST is an architectural style consisting of a coordinated set of architectural constraints applied to components, connectors, and data elements, within a distributed [hypermedia](#) system. REST ignores the details of component implementation and protocol syntax in order to focus on the roles of components, the constraints upon their interaction with other components, and their interpretation of significant data elements.

Service [ISO 19119:2005; ISO/IEC TR 14252; <http://www.opengis.org/docs/02-112.pdf>]

Distinct part of the functionality that is provided by an entity through interfaces.

Session

Temporary association between a subject and a principal as a result of an authentication process initiated by the subject. Information about a session is stored in authentication session information.

SOAP

Simple Object Access protocol is a [protocol](#) specification for exchanging structured information in the implementation of [web services](#) in [computer networks](#). It uses [XML Information Set](#) for its message format, and relies on other [application layer](#) protocols, most notably [Hypertext Transfer Protocol](#) (HTTP) or [Simple Mail Transfer Protocol](#) (SMTP), for message negotiation and transmission.

Software Component [derived from component definition of <http://www.opengeospatial.org/resources/?page=glossary>]

Software program unit that performs one or more functions and that communicates and interoperates with other components through common interfaces.

Source System

Container of unstructured, semi-structured or structured data and/or a provider of functions in terms of services. The source systems are of very heterogeneous nature and contain information in a variety of types and formats.

Support Service

Service that facilitates the operation of an architecture or system oriented service, e.g. providing an added value by combining the usage of Info-Structure Services.

System [ISO/IEC 10746-2:1996]

Something of interest as a whole or as comprised of parts. Therefore a system may be referred to as an entity. A component of a system may itself be a system, in which case it may be called a sub-system.

Note: For modelling purposes, the concept of system is understood in its general, system theoretic sense. The term "system" can refer to an information processing system but can also be applied more generally.

System User

Provider of services that are used for an application domain as well as IT architects, system developers, integrators and administrators that conceive, develop, deploy and run applications for an application domain.

Terminal

Terminals are a mobile device that is capable of running mobile services and/or mobile applications.

Use case

A common definition of use cases is the one described by Jacobson (Jacobson et al (1995) [23]): “*When a user uses the system, she or he will perform a behaviourally related sequence of transactions in a dialogue with the system. We call such a special sequence a use case*”. In Other words, a use case is a textual presentation or a story about the usage of the system told from an end user’s perspective.

The use cases provide some tools for people, with different skills (e.g. software developers and non-technology oriented people), to communicate with each other. The use

cases are general descriptions of needs or situations that often are related to basic scenarios and that are independent of the technologies and implementations of the underlying system.

User

Human acting in the role of a system user or end user of the service and system.

WADL

The Web Application Description Language is a machine-readable [XML](#) description of [HTTP](#)-based [web](#) applications (typically [REST web services](#)) WADL models the resources provided by a service and the relationships between them. WADL is intended to simplify the reuse of web services that are based on the existing HTTP architecture of the Web. It is platform and language independent and aims to promote reuse of applications beyond the basic use in a web browser.

Web Service

Self-contained, self-describing, modular service that can be published, located, and invoked across the Web. A Web service performs functions, which can be anything from simple requests to complicated business processes. Once a Web service is deployed, other applications (and other Web services) can discover and invoke the deployed service.

W3C Web Service [W3C, <http://www.w3.org/TR/2004/NOTE-ws-gloss-20040211/#webservice>]

Software system designed to support interoperable machine-to-machine interaction over a network. It has an interface described in a machine-processable format (specifically WSDL). Other systems interact with the Web service in a manner prescribed by its description using SOAP-messages, typically conveyed using HTTP with an XML serialization in conjunction with other Web-related standards.

4 References

The following references are used as background documents for the preparation of this document. References are categorized standards (i.e. standards and specifications from the consortium working groups or alliances and specifications or drafts standardization bodies) and other documents, publications and technical or scientific books.

[1]	Flspace project. Flspace: Future Internet Business Collaboration Networks in Agri-Food, Transport and Logistics. Deliverable D200.1 <i>"Flspace Design and Release Plan"</i> , 2014.
[2]	Flspace project. Flspace: Future Internet Business Collaboration Networks in Agri-Food, Transport and Logistics. Deliverable D200.2 <i>"Flspace Technical Architecture and Specification"</i> , 2014
[3]	Flspace project. Flspace: Future Internet Business Collaboration Networks in Agri-Food, Transport and Logistics. Deliverable D200.3 <i>"Flspace Integrated Release V1"</i> , 2014
[4]	Flspace project. Flspace: Future Internet Business Collaboration Networks in Agri-Food, Transport and Logistics. Deliverable D200.4 <i>"Flspace Development Progress Report and V1 Updates"</i> , 2014
[5]	Flspace project. Flspace: Future Internet Business Collaboration Networks in Agri-Food, Transport and Logistics. Deliverable D200.5 <i>"Flspace Integrated Release V2"</i> , 2014.
[6]	Flspace project. Flspace: Future Internet Business Collaboration Networks in Agri-Food, Transport and Logistics. Deliverable D200.6 <i>"Flspace Development Progress Report and V2 Updates"</i> , 2014
[7]	Flspace project. Flspace: Future Internet Business Collaboration Networks in Agri-Food, Transport and Logistics. Deliverable D200.7 <i>"Flspace Integrated Release V3"</i> , 2014.
[8]	Flspace Business collaboration web site. http://www.fispace.eu/
[9]	Flspace Developer Documentation web site. http://dev.fispace.eu/doc/wiki/Home
[10]	Flspace Deliverables web site. http://www.fispace.eu/deliverable.html
[11]	Flspace Tutorial web site. http://www.fispace.eu/tutorials.html
[12]	Flspace Front-End Users Information web site. http://dev.fispace.eu/doc/wiki/gui
[13]	Flspace Front-End User Guide web site. http://dev.fispace.eu/doc/wiki/gui/gui-guide
[14]	FIWARE web site. http://www.fi-ppp.eu/projects/fi-ware/

[15]	FIWARE Catalogue of the Generic Enablers (GEs). http://catalogue.fi-ware.org/
[16]	FIWARE community web site. http://www.fi-ware.org/community/
[17]	FIWARE - Catalogue - Application Mashup - Wirecloud. http://catalogue.fi-ware.org/enablers/application-mashup-wirecloud
[18]	FIWARE - Catalogue - Store - Wstore. http://catalogue.fi-ware.org/enablers/store-wstore
[19]	ACSI EU-project web site. http://www.acsi-project.eu/
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