

Small cEIS coordinAtion for Multi-tenancy and Edge services

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Advanced 5G Network Infrastructure for the Future Internet
Research and Innovation Action

Deliverable D1.1 **Project Website**

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Abstract

The purpose of this Deliverable is to demonstrate the establishment and the initialization of the SESAME Project's website that will support the project management activities in parallel with dissemination-related processes. The *Deliverable 1.1* demonstrates the structure of the existing SESAME website and describes both the publicly accessible part as well as the private part.

Executive Summary

The purpose of this *Deliverable 1.1* is to demonstrate the establishment and the initialization of the SESAME Project's website that will support the project management activities in parallel with dissemination-*related* processes and/or activities. The present deliverable demonstrates the structure of the existing SESAME website and describes both the publicly accessible part as well as the respective private part.

SESAME will host a comprehensive public website that will contain all relevant information about the Project. A public section allows sharing information and documents among all partners, also including any other "third party" (i.e., physical and/or legal persons) that may express interest to access such data and receive information about the scope and the achievements of the SESAME-*based* effort. The public section presents the specific aims, the vision and objectives as well as the goals, the plan, the development(s) and the intended achievements of the Project. It is also used to publish the public deliverables and the papers (as well as other works and/or relevant presentations) that have are to be presented or accepted in international conferences, workshops, meetings and other similar activities towards supporting a proper dissemination and exploitation policy of the Project). Furthermore it includes references to the related 5G-PPP context, as promoted by the European Commission (EC), and potentially affecting progress of the SESAME effort. In addition, the public part includes an indicative description of the profiles of the involved SESAME partners as well as a part for links to other informative areas. There is also a link to a private part of the website, accessible only by the partners or the "*beneficiaries*") of the Project.

The private part of the website serves as the "project management and collaboration platform" bearing (among others) advanced document management features (e.g. document versioning/history, documents check-in/out/locking, etc.) and a powerful search functionality to ensure efficient work and collaboration among partners.

The SESAME consortium is always proactively taking supplementary measures to raise awareness and encourage the implementation of the technical, business, social and all other concepts developed though the development of the public website.

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Glossary

Acronym	Explanation
4G	4th Generation
5G	5th Generation
5G-PPP	5th Generation-Public Private Partnership
CC	Cloud Computing
CESC	Cloud Enabled Small Cell
DC	Data Center
EC	European Commission
EU	European Union
GA	Grant Agreement
H2020	Horizon 2020
HTTP	Hypertext Transfer Protocol
HW	Hardware
ICT	Information and Communications Technology
IT	Information Technology
NFV	Network Function Virtualization
PPP	Public Private Partnership
SC	Small Cell
SME	Small- and Medium-sized Enterprise
VNF	Virtual Network Function
WP	Work Package
WWW	World Wide Web

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1 Introduction

The **SESAME Project (Grant Agreement (GA) No.671596)** -hereinafter the “Project”- is an active part of the 5G-PPP initiative and targets innovations around three central elements in 5G, as follows:

- (i) The placement of network intelligence and applications in the network edge through Network Functions Virtualization (NFV) and Edge Cloud Computing;
- (ii) the substantial evolution of the Small Cell concept, already mainstream in 4G but expected to deliver its full potential in the challenging high dense 5G scenarios, *and*;
- (iii) the consolidation of multi-tenancy in communications infrastructures, allowing several operators/service providers to engage in new sharing models of both access capacity and edge computing capabilities.

SESAME proposes the Cloud-Enabled Small Cell (CESC) concept which is a new multi-operator enabled Small Cell that integrates a virtualized execution platform (i.e., the Light DC (*Data Center*)) for deploying Virtual Network Functions (VNFs), supporting powerful “self-x” management and executing novel applications and services inside the access network infrastructure. The Light DC will feature low-power processors and hardware accelerators for time critical operations and will build a high manageable clustered edge computing infrastructure. This approach will allow new stakeholders to dynamically enter the value chain by acting as neutral host providers in high traffic areas where densification of multiple networks is not practical. The optimal management of a CESC deployment is a key challenge of SESAME, for which new orchestration, NFV management, virtualization of management views per tenant, self-x features and radio access management techniques will be developed.

After designing, specifying and developing the architecture and all the involved CESC modules, SESAME will culminate with a prototype with all functionalities for proving the concept in relevant use cases. Besides, CESC will be formulated consistently and synergistically with other 5G-PPP components through coordination with the corresponding projects.

SESAME will host a comprehensive public website that will contain all relevant information about the Project. The public website is already operational, since the second month of the SESAME’s actual effort.

The public section presents the specific aims, the vision and objectives as well as the goals, the plan, the development(s) and the intended achievements of the Project. It is also used to publish the public deliverables and the papers (as well as other works and/or relevant presentations) that have are to be presented or accepted in international conferences, workshops, meetings and other similar activities towards supporting a proper dissemination and exploitation policy of the Project). Furthermore it includes references to the related 5G-PPP context, as promoted by the European Commission (EC), and potentially affecting progress of the SESAME effort. In addition, the public part includes an indicative description of the profiles of the involved SESAME partners as well as a part for links to other informative areas. There is also a link to a private part of the website, accessible only by the partners or the “beneficiaries”) of the Project.

The website will be regularly updated over the lifetime of the SESAME Project with the Project publications and public materials, with specific emphasis to be given upon dissemination-related actions. The SESAME website is to be considered as an “on-going effort” and should include not only technical information but also materials useful to disseminate the Project work to non-experts, including policy makers. The aim is to make it compelling for the general public and provide regular updates to attract a “*dialogue*” with potential stakeholders and citizens.

The website also contains a fully operational section “*for the partners only*”, (i.e., a private section) to serve the management actions of the total effort (the relevant work for this purpose has been performed by the project coordinator, that is the Hellenic Telecommunications Organization S.A.-OTE. The private part of the website serves as the “project management and collaboration platform” bearing (among others) advanced document management features (e.g. document versioning/history, documents check-in/out/locking, etc.) and a powerful search functionality to ensure efficient work and collaboration among partners.

2 Description of the SESAME Website

A major objective of the different partners of the SESAME consortium is to ensure an appropriate dissemination and exploitation of the results of the Project, while performing Project's scheduled distinct phases and actions, with specific emphasis given upon the well identified SESAME objectives, via the proper implementation and use of related actions, *as predicted by the detailed project's schedule and in the GA in general*.

Hence, the partners are very attentive to promoting a domain where there is actual technical, business –or any other kind- of interest, especially in the context of the fully liberalised and competitive European e-Communications market sector. SESAME is supporting and cross-fertilizing relevant activities so that they collectively benefit from each other via technical know-how and expertise as well as in order to “exchange” experiences in other domains (like those affecting relevant business, social, regulatory, etc. issues).

The essential SESAME strategy aims at promoting the Project results and ensuring Project awareness within the European ICT and the global research community. The SESAME consortium has exploited various dissemination “channels” for the work items researched and technology solutions investigated. Specifically, the dissemination efforts include, *inter-alia*, the following activities: Publications of Project results in international peer reviewed Journals, Magazines and Book Chapters, contributions and participation at International Conferences, Workshops and Summits, organization of SESAME-based Special Sessions/Workshops, participation and contributions to European Commission's and 5G-PPP's Concertation and Cluster Meetings, Interactions with other forums and “similar” EU-funded projects and institutes and support of a continuous SESAME online presence.

The **SESAME website** (<http://www.sesame-h2020-5g-ppp.eu/>) has been prepared since the beginning of the Project effort and became valid during the second month of the Project. It is used as an effective Project organisation application as well as a proper “dissemination” tool, to cover the strategy aims that have been identified in the previous paragraph.

For these reasons, the website is divided into two essential parts: A private section allows sharing of information and documents among all SESAME partners. The public section presents the goals, the aims/visions and the development and achievements of the Project. It is also used to publish the public deliverables and the papers (as well as other works and/or presentations) that have been presented or accepted or are to be presented in international conferences, workshops, meetings and other similar activities).

The SESAME consortium is always proactively taking supplementary measures to raise awareness and encourage the implementation of the technical, business, social and all other concepts developed through the development of the public website.

2.1 SESAME Website: Public Section

The SESAME Project website (<http://www.sesame-h2020-5g-ppp.eu/>) (as shown in *Figure 1*) has been launched in *August 2015*, supporting the Project's operation. It contains a public part that is accessible to all Internet users and provides the external community with the current information on the aims and the progress of the Project. It also provides a link to the private section dedicated to the SESAME consortium partners, which is only accessible by using specific credentials (<http://programsection.oteresearch.gr>). *Figure 1* provides an indicative snapshot of the existing part of the public website.

The registered domain <http://www.sesame-h2020-5g-ppp.eu/> serves thus as the single contact point for the on-line presence of the SESAME Project.

The goal of the public part of the web-site is to foster Project awareness by presenting SESAME's concept, scope, aims/visions and objectives, the approach to be followed, as well as the work breakdown among the separate work packages (WPs). The public part is continuously updated with any relevant material, such as *inter-alia*, publications (i.e.: public deliverables, articles-papers in magazines/conferences/workshops, presentations to various events, etc.) achieved by the Project partners-beneficiaries, thus ensuring that SESAME-based results are timely and widely disseminated in an attempt to promote the adoption of the Project's concepts. The site's updates are also captured in a separate news section to facilitate easier follow-up

by the interested readers. The public part features also the necessary contact information for the consortium as a "whole". The public part also includes the related logos of: the European Commission, the 5G-PPP framework and the *Horizon 2020* (H2020), as predicted by the relevant GA.



Figure 1: SESAME Public Section - Welcome Screen

Figure 2, as below, provides a more detailed view of the specific contents of the public part of the SESAME website, with the aim of covering all important SESAME-related thematic issues.



Figure 2: SESAME Public Section - Specific contents

The public website is carefully structured in a way to “include” several distinct domains -or *well-defined thematic areas*- that include essential information about the Project and so they should be able to properly “depict”, to any interested third person, the main perspective of the intended Project-based effort.

It provides a “compacted” but quite explicit presentation of the related material, in order to better serve the notification of the intended effort, to any potential reader.

It should be expected that during evolution/progress of the related SESAME pilots, more material is to be included in the related website sections to raise awareness.

Figure 3, below, depicts the already identified project objectives that are to be fulfilled during the expected life-cycle of the full SESAME effort; these are mentioned as they have already been identified in the context of the corresponding SESAME GA. These constitute a very important part of the Project and it is expected that they should affect all forthcoming effort, towards properly achieving them.



Figure 3: SESAME Public Section - Project Objectives

The next figure (i.e., Figure 4), presents that part of the website which includes some essential information about the SESAME vision and the specific attributes that characterize the entire scope of the innovative framework of the Project.

Thus, we identify the main role that Small Cells (SCs) are to perform in our approach within the scope of the global 5G vision; the consolidation of multi-tenancy in modern communications infrastructures, and; the placement of network intelligence and applications in the network edge through NFV and edge cloud computing (CC). Furthermore, in the same part we include more detailed data about the SESAME *Innovation* options as well as about the intended *Scenarios* to be further developed in the Project.

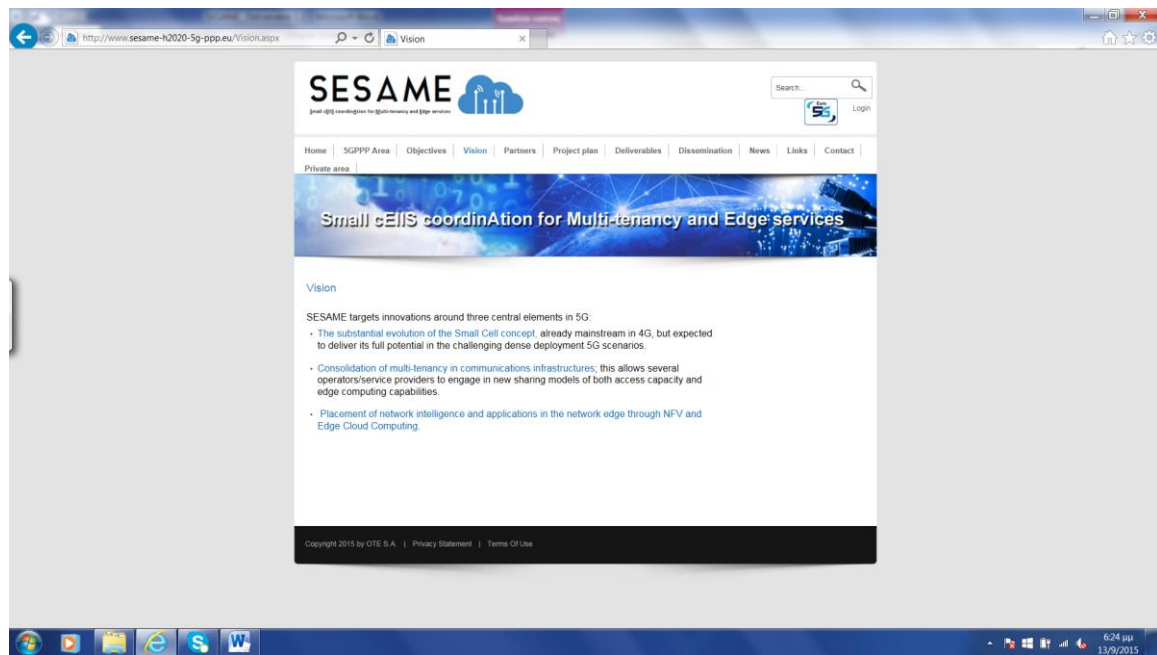


Figure 4: SESAME Public Section - Project Vision

Figure 5 presents a summary of the SESAME consortium:

- One national Network Operator (OTE)
- Four SMEs (VOSYS, ORION, ATN, INC)
- Four global manufacturer industries, global players in their area (IPA, ITL, STM, FLE)
- One global player of IT services provider: ATOS
- Three Research Centers with long term experience in ICT sector and networking (CNET, i2CAT, NCSRD)
- Five Universities and Higher education institutes participating with their teams focusing on networking, SDN, Cloud Computing and NFV areas (UNIS, UoB, EHU, ZHAW, UPC).

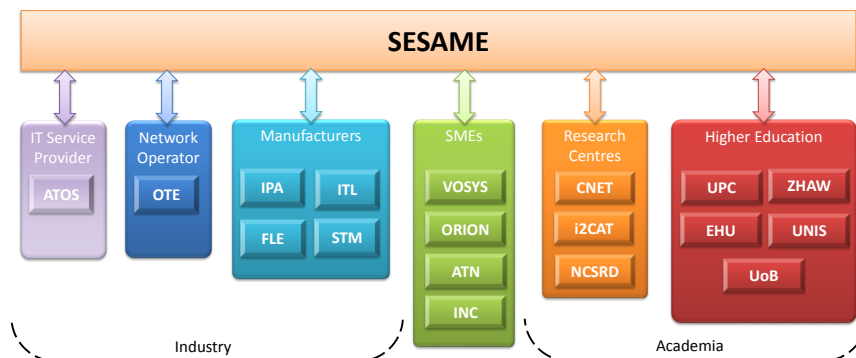


Figure 5: SESAME consortium composition

Figure 6 provides an overview of the actual SESAME partners-beneficiaries, as appear in the public part of the Project's website. Specific informative data is given for every separate partner, involved in the Project. In order to realise its intended objectives, SESAME brings together a number of organisations and other legal entities across Europe, to create a "balanced" ecosystem of organisations to "drive" the Project and achieve outstanding results. The SESAME ecosystem includes: A network operator and an IT service provider, manufacturers, SMEs, research centers and subject matter experts/academic partners.

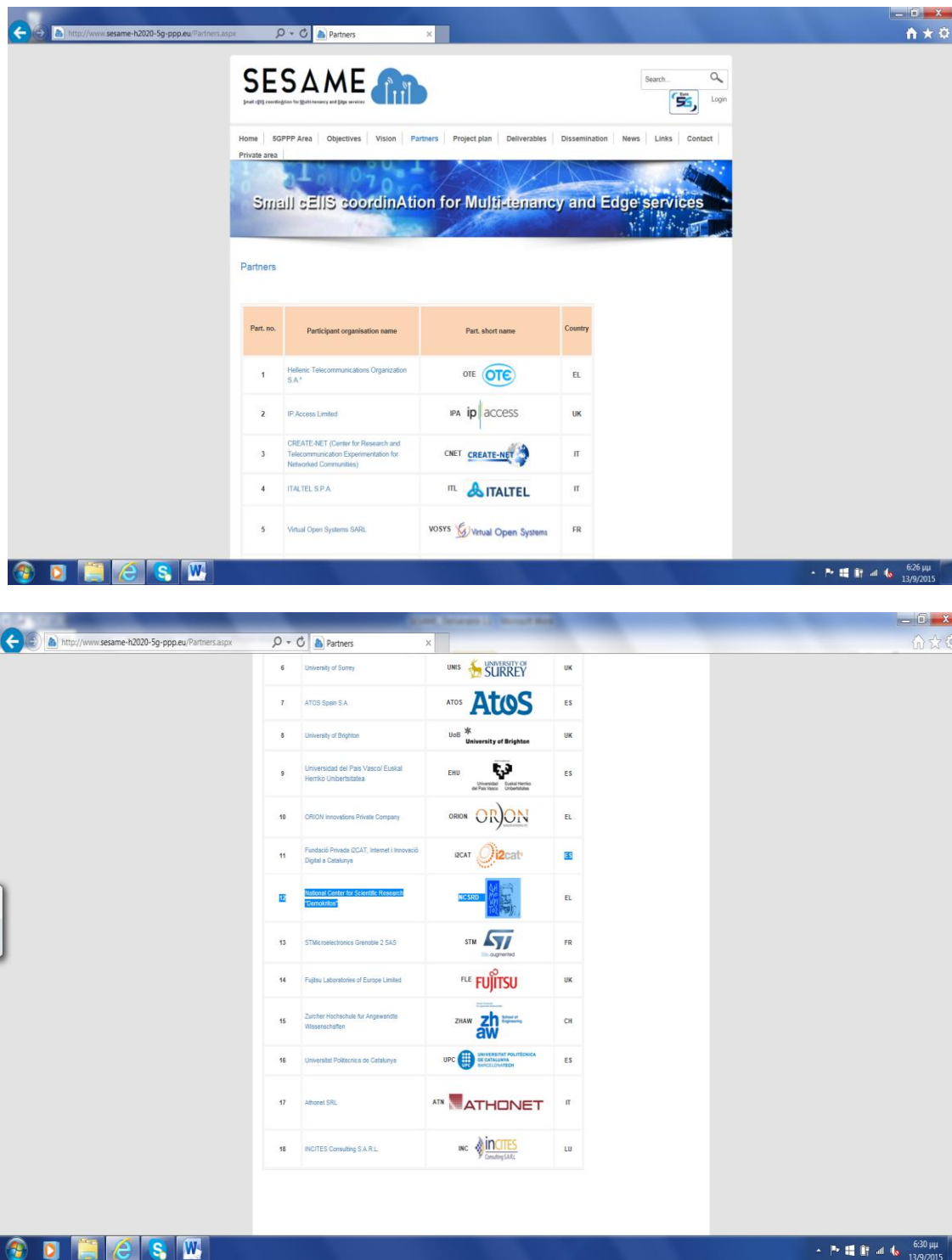


Figure 6: SESAME Public Section - Project Partners

In that part we also depict information about the profiles of the partners (as in the previous *Figure 5*) as well as a geographical description with partners' countries of origin/establishment in Europe.

The SESAME consortium is formed by participants that together form a complete group with many areas of expertise capable of achieving the project goals. The most important quality of the consortium is the balance it has, so that all important sectors of the industry, research institutes and academia are represented in SESAME. The consortium has gathered a critical mass of industrial/commercial partners, both large companies' and SMEs, along with complementary skills obtained from research institutes and universities to accomplish the goal of 5G systems. The proposed system architecture and the platform implemented and demonstrated in the project toward 5G systems will involve several complementary strategies and techniques covering many specific domains.

The SESAME project partners were carefully selected to provide such complementary skills and competences, which adequately cover all the project objectives and activities, starting from the generation of ideas, to analysis of requirements, to specification and design, implementation, system integration, up to system validation and demonstration, dissemination and exploitation. In the following, we describe how the composition of the consortium with respect to expertise, partner type and geographical balance, technical and business complementarity, will address the project requirements in achieving the "key" SESAME results and impact in 5G systems.

The related part of the website also provides detailed information per separate partner so that to delineate his respective role and contributions in the SESAME effort, as a result of the "expertise" offered by each separate partner. The subsequent figure (i.e.: *Figure 7*) provides an indicative screen-shot for the case of one partner (the project coordinator) where more specific data is given.



Figure 7: SESAME Public Section - More detailed information per partner

The next part of the public website as indicatively depicted in the domain under the term "Project Plan" (shown in *Figure 8*), provides an overview of the project plan, with an analysis of the intended work plan and with the separate tasks properly identified, *per WP*. In the same section there is a description of the related WPs as indicatively shown in *Figure 9*.



Figure 8: SESAME Public Section - Project Plan

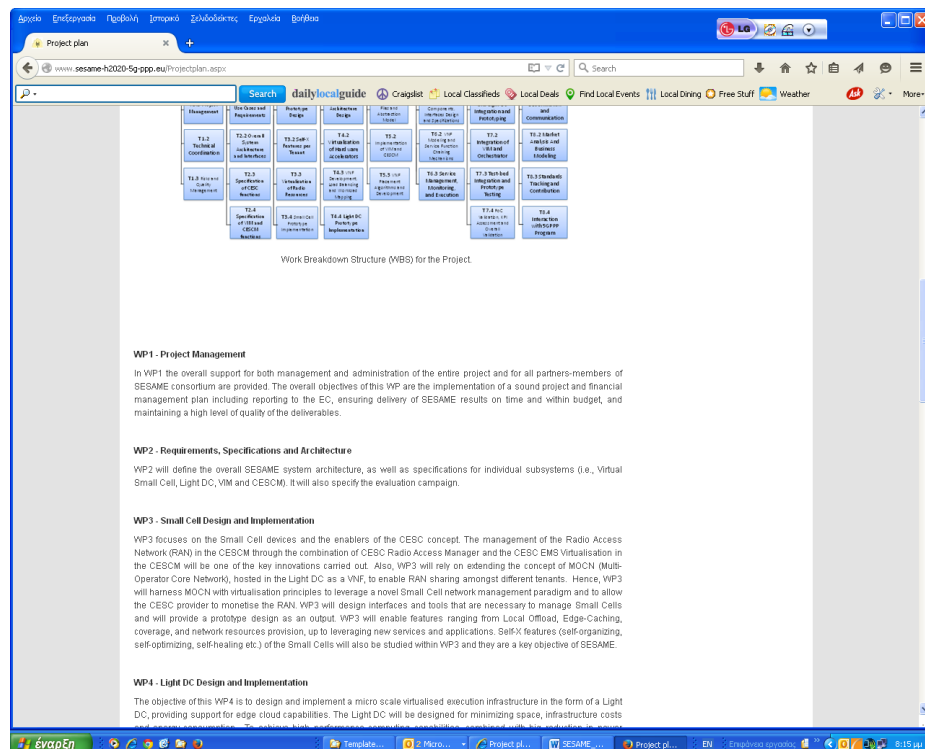


Figure 9: SESAME Public Section - Project Plan with WPs

Figure 10 provides an indicative screen-shot of another thematic domain, the one that includes all SESAME deliverables. Conformant to the provisions of the SESAME GA we depict each deliverable relevant to each separate WP, with information about the lead participant among the project partners, the type of the deliverable (i.e., report, demonstration or other), the dissemination level and the expected contractual delivery date.

All “public” deliverables will be uploaded for free download by any interested third party, once these deliverables are accepted by the respective reviewers during the scheduled reviewing periods. That process is to take place dynamically, during the life-time of the SESAME Project.



#	Deliverable name	WP	Lead Participant	Type	Dissem. level	Delivery date
D1.1	Project website	1	OTE	OTH	PU/RE	M01
D1.2	Project Handbook with Strategic plan for quality assurance and risk management	1	OTE	R	RE	M02
D1.3.1	Periodic progress report	1	OTE	R	CO	M12
D1.3.2	Periodic progress report	1	OTE	R	CO	M24
D1.4	Report on awareness and wider societal implications	1	OTE	R	PU	M30
D1.5	Final project report	1	OTE	R	CO	M30
D2.1	System Use Cases and Requirements	2	OTE	R	PU	M06
D2.2	Overall System Architecture and Interfaces	2	NCSRD	R	PU	M09
D2.3	Specification of the CESC components – First iteration	2	IPA	R	RE	M09
D2.4	Specification of the Infrastructure Virtualisation, Orchestration and Management – First iteration	2	ATOS	R	RE	M09
D2.5	SESAME Final Integrated Architecture and PoC Assessment KPIs	2	NCSRD	R	PU	M18
D3.1	CEIS Prototype design	3	IPA	R	PU	M12

Figure 10: SESAME Public Section - Project Deliverables

Figure 11 provides an indicative screen-shot of thematic domain relevant to “News”. This is an on-going effort as it is expected to include all kind of activities where all 18 SESAME partners are to participate. The respective figure just provides an overview of the actual domain the date of the issuance of the present deliverable.

Figure 12 provides an indicative screen-shot of thematic domain relevant to “Links”. This is also an on-going effort as it is expected to include links to any kind of action s explicitly or implicitly relevant to the Project, for technical, business, regulatory, administrative, strategic, ethics or other issues.

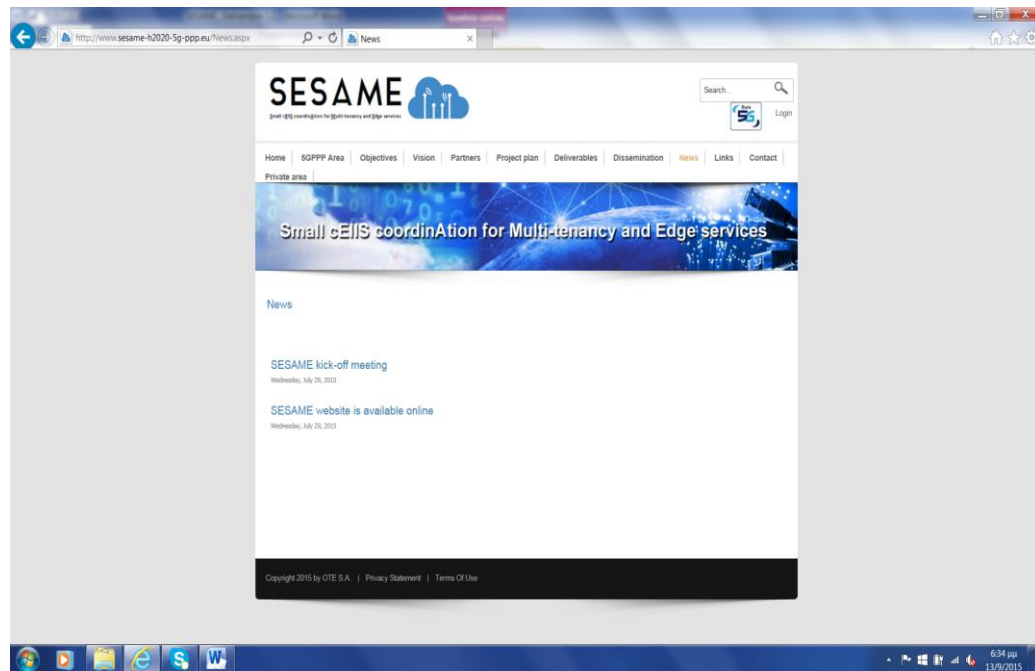


Figure 11: SESAME Public Section - News



Figure 12: SESAME Public Section - Links

Figure 13 provides a link to the “Contacts” domain, with communication information for access by any third interested party. For the time being, the full coordinates of the project coordinator and of the technical manager have been included.

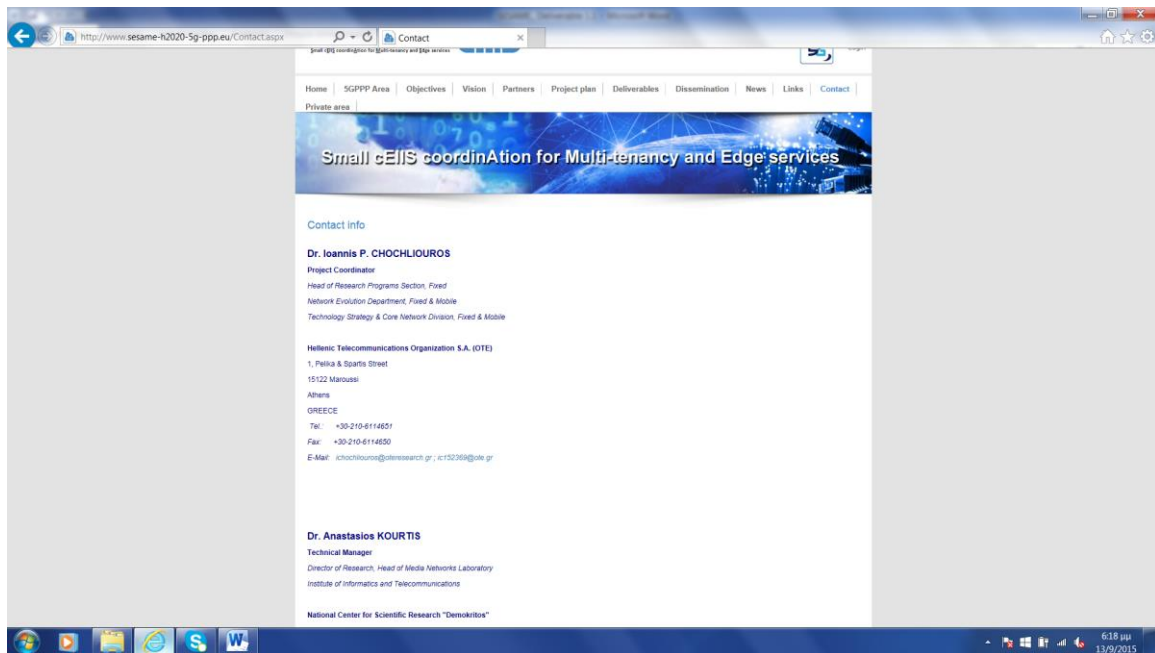


Figure 13: SESAME Public Section - Contacts

The other two thematic domains (i.e.: the “5G-PPP” area and the “Dissemination” area) are also to be updated, *gradually*, via the inclusion of SESAME-related material that is to appear during the life-time of the Project.

2.2 SESAME Website: Private Section and Project Management & Collaboration Platform

Within the original SESAME website, there is also a direct link to a private section dedicated to the SESAME consortium partners, which is only accessible by using specific credentials.

(<http://programsection.oteresearch.gr>).

The private part of the website serves as the project management and collaboration platform bearing, *inter-alia*, advanced document management features (e.g., document versioning/history, documents check-in/out/locking, etc.) and a powerful search functionality to ensure efficient work and collaboration among partners. The private section (Figure 14) of the website was created to serve as the project management and collaboration platform. Figure 15 also gives a view of the private part of the website, *once accessed*.

It is available at: <http://programsection.oteresearch.gr> (under [Libraries\SESAME section](#)).

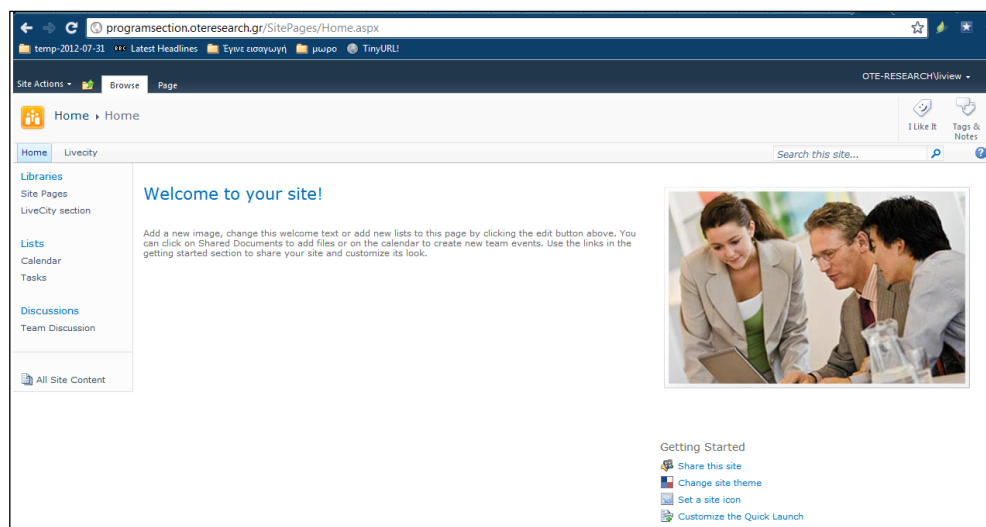


Figure 14: SESAME Private Section - Welcome Screen

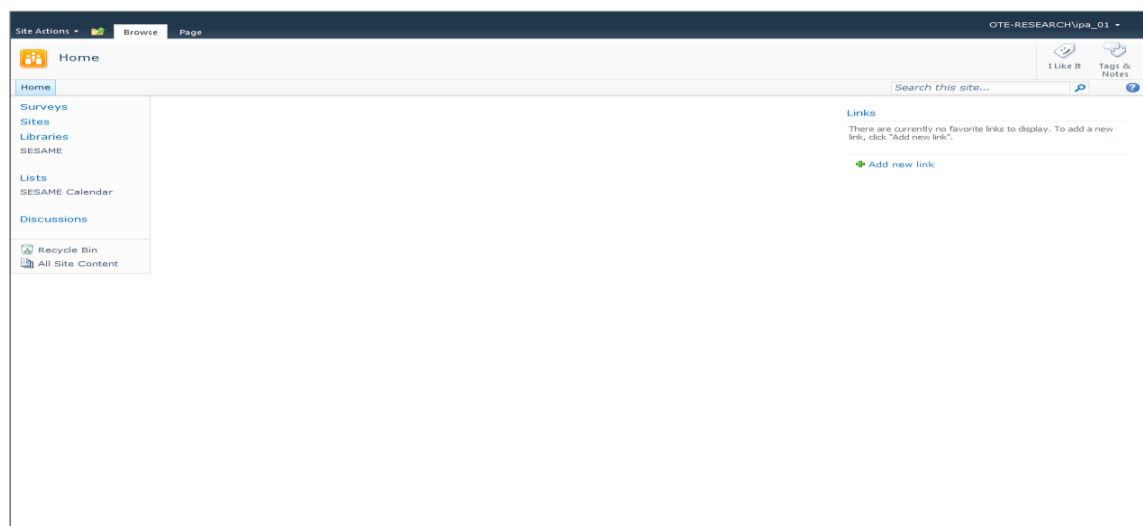


Figure 15: SESAME Private Section - Partners' accessed part

Figure 16 also gives a more detailed view of the private part of the website, where several thematic folders have been created and are to be updated, *on a proper basis*, so that to include all necessary material for partners' proper information. Moreover, to facilitate homogeneous functionality and easier cross-work packages communication, a separate but identical folder structure has been developed for each WP (Figure 17).

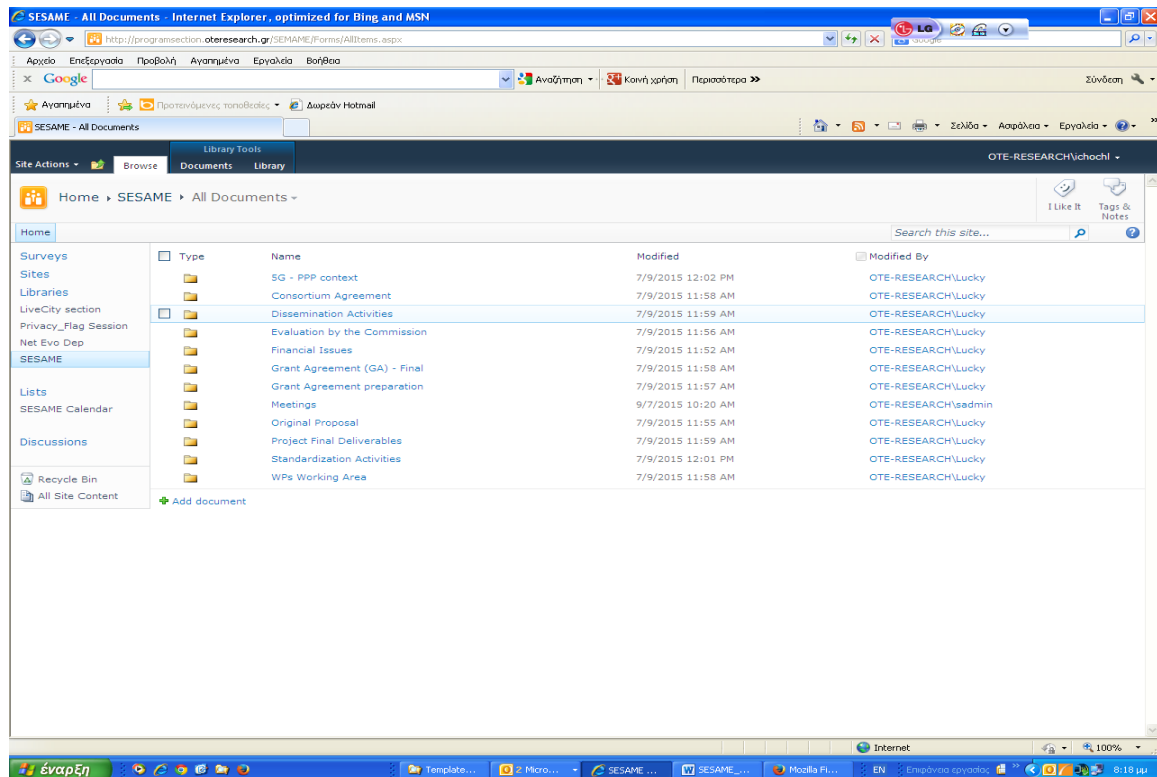


Figure 16: SESAME Private Section - Distinct thematic contents

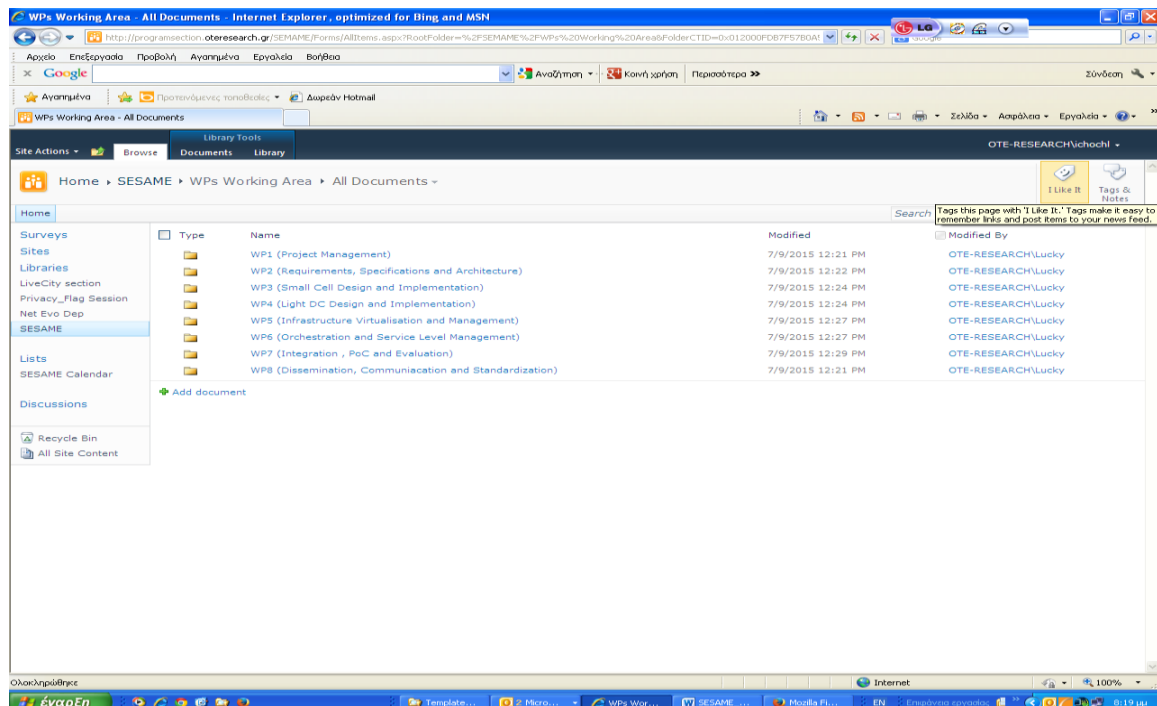


Figure 17: SESAME Private Section - Distinct thematic contents per separate WP

Following to the description given above, the analysis proceeds to “a level further” by including a detailed description of the expected deliverables, *per WP*, with the aim of providing the working space for updating subsequent drafts as well as the final version of the respective deliverables.

Figure 18 depicts the separate deliverables that have been predicted and composed within every relevant WP.

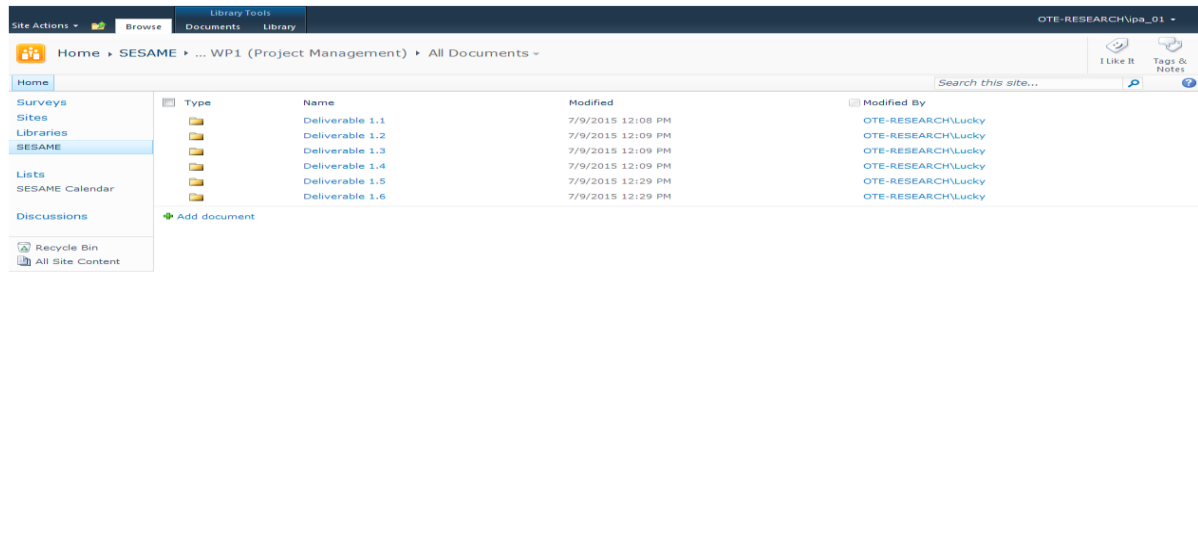


Figure 18: SESAME Private Section - *Distinct thematic contents per separate deliverable*

The platform hosting the collaboration section is *MS Sharepoint 2013* and can provide a great variety of benefits as already mentioned above (for example, as those shown in *Figure 19* and in *Figure 20*).

In particular, as of the case of *Figure 19*, the *MS SharePoint platform* provides several file management options, to support the enhancement and the quality of the uploaded material, by anyone authorised partner.

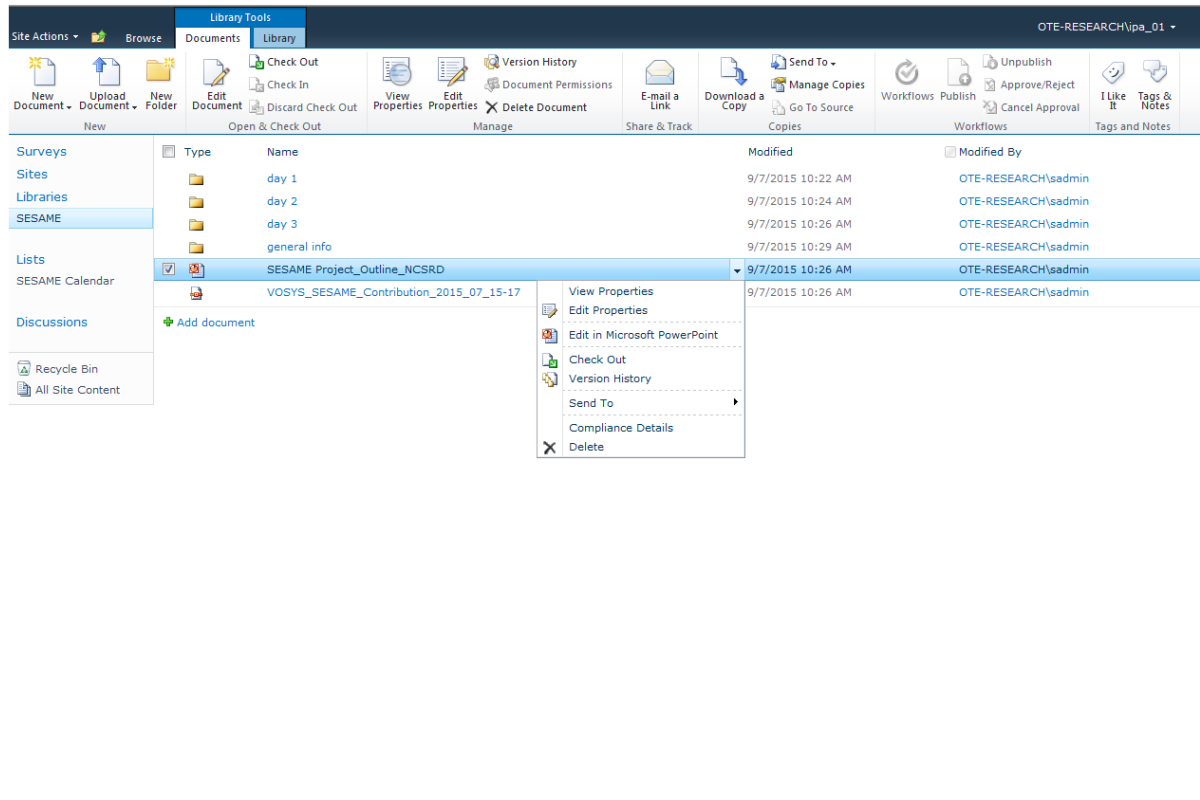


Figure 19: SESAME Private Section - File Management options

The integrated project calendar (*Figure 20*) ensures that all important dates for the consortium (e.g. progress meetings, phone conferences, related conferences etc.) are captured in a single point and partners can synchronise their activities based on it.

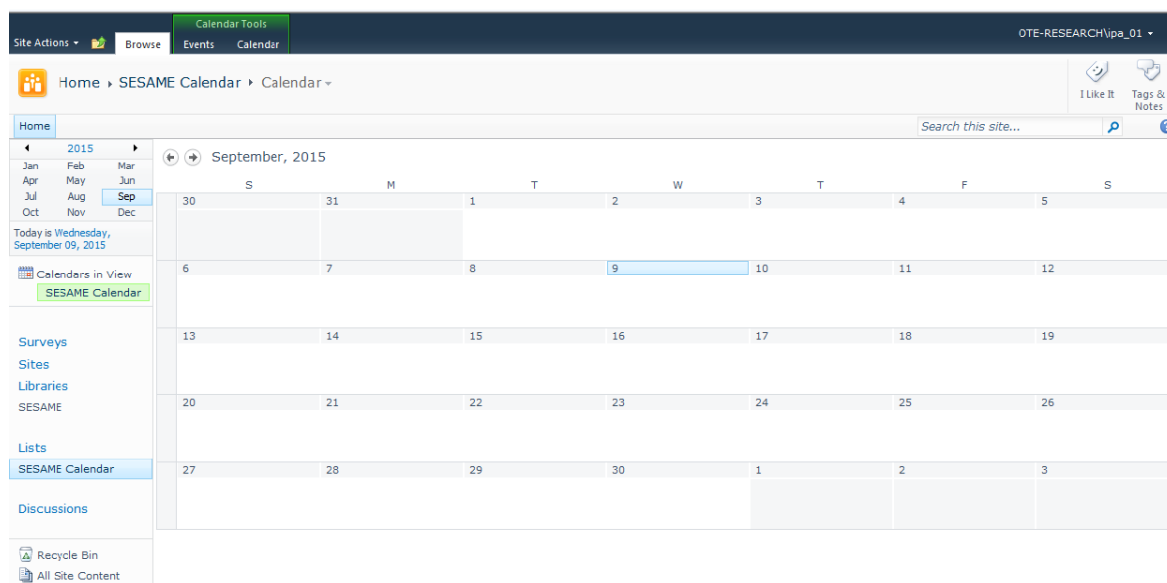


Figure 20: SESAME Private Section - SESAME Calendar

Overall, the collaboration web site is a dynamic one that will be taking the necessary form to be able to cover the partner's needs at each time, and grow as the program matures and more material is produced. Overall, the website is being monitored on a weekly basis regarding any external references pointing to it, while all interactions are secured to ensure the consortium's confidentiality.

3 Conclusion

In this document, that is SESAME's *Deliverable 1.1*, we have documented the SESAME Website's establishment and initialization. We depict the existing structure concerning both the public section and the private section. A public section allows sharing of information and documents among all partners as well as with any interested third party. That section presents the goals, the developments and the achievements of the Project. It is also used to publish the public deliverables and the papers (as well as other works and/or presentations) that have been presented or accepted in international conferences, workshops, meetings and other similar activities). In fact, it contains any kind of related material that can be published, to anyone's attention, without being restricted by specific agreements or terms.

The website also contains a fully operational section "*for the partners only*", (i.e., a private section) to serve the management actions of the total effort. The private part of the website serves as the project management and collaboration platform bearing (among others) advanced document management features (e.g. document versioning/history, documents check-in/out/locking, etc.) and a powerful search functionality to ensure efficient work and collaboration among partners. This includes all SESAME-related material that can be accessed by the SESAME partners only and/or by the European Commission.

The SESAME consortium is always proactively taking supplementary measures to raise awareness and encourage the implementation of the technical, business, social and all other concepts developed through the development of the public website.