

SEAF

EC GA n° 696023

Deliverable D5.4 – Report on full/final demonstration

V1.0



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 696023. The sole responsibility for the content of this document lies with the authors. It does not necessarily reflect the opinion of the European Union. Neither the EASME nor the European Commission are responsible for any use that may be made of the information contained therein.

Document Information

Programme	Horizon 2020 – EE-2015-3-MarketUptake
Project acronym	SEAF
Grant agreement number	696023
Number of the Deliverable	D5.4
WP/Task related	WP5
Type (distribution level)	Public
Date of delivery	31/05/2018
Status and Version	V1.0
Number of pages	18
Document Responsible	Stefan Dunjic - JA
Author(s)	Stefan Dunjic - JA
Reviewers	Michael Pachlatko – JA Vasilis Chatziathanasiou – AUTH

Revision History

Version	Date	Author/Reviewer	Notes
V0.1	14 May 2018	Stefan Dunjic – JA	First draft
V0.2	22 May 2018	Michael Pachlatko – JA	First review
V0.3	29 May 2018	Vasilis Chatziathanasiou – AUTH	Second review
V1.0	30 May 2018	Stefan Dunjic – JA	Final version

Contents

Document Information 2

Revision History 3

Executive Summary 5

1 Introduction 6

2 The development process 7

3 Stakeholder engagement and feedback..... 8

3.1 Early platform releases 8

3.2 Official release 10

 3.2.1 Feature list of the official release 12

3.3 Post-release activities 13

4 Outcomes and insights 14

5 Conclusions..... 18

Executive Summary

Deliverable D5.4 reports on the development, demonstration and use of the SEAF platform as the final product of the SEAF project. The SEAF platform was developed with the primary goal of standardizing and simplifying the way small energy efficiency and renewable energy projects get access to finance. The platform provides its users with the core services required to successfully evaluate a project from an investment perspective, include a core valuation module, access to insurance quotations, access to Investor Confidence Project certifications, as well as robust document management system.

The SEAF platform was developed using the agile software methodology, in which requirements and solutions evolve through collaboration between stakeholders and development teams, with continuous and frequent software deliveries. The landing page for the platform is available at <https://www.eu.jouleassets.com/about-equad/>. Users can read about the platform and request access by following the instructions on this page.

The SEAF consortium established a significant stakeholder group of more than 300 members to influence the direction of the final product. Early versions and demonstrations of the platform were presented to users and stakeholders through a variety of methods – workshops, one-on-one meetings, personal online-demonstrations, and webinars. Detailed feedback was collected based on the early versions of the platform, and the final release includes platform updates based precisely on the user and stakeholder feedback, as this report shows in detail.

During the development of the SEAF platform, the consortium gained key insights and lessons in the area of energy finance. These include the need for a flexible and easy to use product, the benefits and savings of standardized project reports, the value of trust in enabling finance, and the value of educating users and stakeholders in order to improve communication and increase the chances of successful investments.

Finally, the SEAF platform has delivered valuable results, including more than €9 million in funds approved for financing SEAF projects, and 25 introductory and negotiation meetings set up between investors and contractors, among others.

1 Introduction

This deliverable reports on the development, demonstration and use of the SEAF platform as the final product of the SEAF project. The SEAF platform, promoted since the final release under the name *eQuad*, is a Software-as-a-Service web application serving two primary groups of users:

1. Contractors (project developers), such as Energy Service Companies (ESCOs), small energy engineering companies, facility managers, etc., and
2. Investors, such as private financial funds, banks, institutional investors, etc.

The main goal of the platform is standardizing and simplifying the way small energy efficiency and renewable energy projects get access to finance. This goal is achieved through a set of services provided directly by the platform. The core services are:

- **Project Valuation:** each project on the platform goes through a set of forms designed to extract its key technical and financial performance information. At the end of this process, a standardized, investor-ready report is generated, summarizing all of the project's key details.
- **Insurance – Risk Assessment:** project developers can optionally fill in an Insurance Statement of Fact and through it request a performance insurance quotation from HSB Engineering Insurance Limited.
- **Investor Ready Energy Efficiency Certification (IREE):** the platform is designed to support the requirements of the Investor Confidence Project (ICP) process and protocols, through a specialized ICP form, and by allowing project developers to submit ICP-required documentation.
- **Document Management System (DMS):** the SEAF platform includes a document management system, used for the purpose of technical, financial and ICP-related due diligence.

In this document we describe the development process behind the creation of the platform, the feedback received from the users through demonstration and workshops, and how that feedback is incorporated in the final release version of the SEAF platform. We also present some key outcomes and key performance indicators of the project. The technical details and the user interface demonstration of the final release of the platform are described separately in deliverable *D5.2 "SEAF platform release"*.

2 The development process

The SEAF platform was developed by using the agile software development methodology. The agile methodology is a set of principles for software development in which requirements and solutions evolve through collaboration between stakeholders and development teams, with continuous and frequent software deliveries.

Requirements cannot be fully collected and realized at the beginning of the software development cycle. As the platform was used and gained value, and the stakeholders provided feedback, core platform requirements crystalized over time. In the context of the SEAF platform, the initial requirements were dependent on the core services provided by project partners – valuation (Joule Assets), insurance (HSB), and certification (ICP). Building upon these was the feedback from the project's stakeholder group, which was gathered through a combination of workshops, events, live interviews, webinars, feedback from project partners, and direct demonstrations and trainings with active users. After a significant amount of feedback was gathered and analyzed, a new set of features was developed and released to the platform.

The technology stack for the SEAF platform is based on the following systems and services:

- [Node.js](#)
- [Express](#)
- [Angular.js](#)
- [MongoDB](#)
- [Nginx](#)
- [Ubuntu 16.04](#)

The development environment for the platform included a production server where the latest stable version of the application was hosted, and a staging server, where pre-release versions of the software were uploaded. Regular backups of the platform databases were scheduled and maintained in two different physical locations. The landing page for the platform is available at <https://www.eu.jouleassets.com/about-equad/>. Users can read about the platform and request access by following the instructions on this page.

3 Stakeholder engagement and feedback

As we mentioned in the previous section, continual user feedback was a critical process of the SEAF development process. Over the course of the project the stakeholder group grew to over 300 members, who participated in the project through live events, workshops, webinars, qualitative interviews, demonstrations, and finally as actual users of the SEAF platform. Through these engagement activities, 65 contractor interviews and 25 investor interviews were carried out. In this section we present the feedback on the initial early release of the SEAF platform, and then we showcase how that feedback is incorporated into the final release of the platform. More information on stakeholder engagement and user feedback is available in deliverables *D1.2 “Report on interchange with the core stakeholder group”* and *D5.3 “Report on Feedback of the SEAF Platform Releases”*.

3.1 Early platform releases

The earliest, alpha release of the SEAF platform was made available to a closed group of 10 contractors from the stakeholder group in the period of January – February of 2017. These were one-on-one demonstrations, in which contractors were presented with the platform’s core services and interfaces. The users were given a three-week period of hands-on experience, during which additional training by consortium members was available to each user.

Following this, an open beta version of the platform for contractors was announced at the SEAF Investor Forum in Milan, on 8 March 2017. The platform was demonstrated to an audience of over 100 energy efficiency experts, mainly representing the Italian ESCO and private finance sectors. At this event, additional feedback on the platform was collected from investors from three different financial funds, who were also presented with an initial demo of the investor side of the platform.

The early releases of the platform were crucial for determining the shape of the final product. The following are key feedback items collected from users and stakeholders at this point:

1. Contractor feedback

- 1.1. The database of energy conservation measures should include all the technologies the contractors specialize in

- 1.2. Historical energy usage data for specific sites needed to be expanded to include a wider range of fuel types and energy units
- 1.3. The documentation required for the verification process should be described in precise detail
- 1.4. Contractors wanted the platform available for use in their own language
- 1.5. The methodology for the calculation of financial metrics needs to be transparent for the contractors to gain trust in the platform, and so that they can replicate the exact results from their business models
- 1.6. The section on cost structure needs to be flexible enough so that contractors can account for all the cost types that occur in different projects
- 1.7. Personalized technical trainings on platform usage should be available for new users
- 1.8. A knowledge base should exist on the portal, with information to support platform usage

2. Investor-related feedback

- 2.1. The customer's ability to pay is the key criteria for investment, therefore customer VAT numbers are needed for consideration and should be visible
- 2.2. Official investment criteria may or may not be followed, therefore the initial introduction should provide all key data for an investment committee – this must then be followed by face-to-face meetings
- 2.3. Key criteria, which should be clearly visible on the introductory pro-forma:
 - 2.3.1. Customer type: public/private and industrial, commercial or residential
 - 2.3.2. Registration number
 - 2.3.3. Location of project
 - 2.3.4. Internal rate of return
 - 2.3.5. Project size
 - 2.3.6. Duration
 - 2.3.7. Technologies used
 - 2.3.8. Stage of project
 - 2.3.9. Optional: Acceptance for performance insurance

After the early release event in March 2017, the platform entered an open beta stage, during which the first users started using the platform and providing further feedback for product improvements.

3.2 Official release

The official release of the SEAF platform was presented to the stakeholder group at the SEAF Investor Forum in Brussels, on 29 November 2017. The development of the final release was directly influenced by the feedback received in the early platform releases, as well as additional feedback received from users while the platform was in an open beta stage, in the period of March – November 2017.

The table below illustrates how key feedback items were implemented by the consortium partners in the official release of the platform.

Early release feedback	Implementation in final release
The database of energy conservation measures should include all the technologies the contractors specialize in	The final list of measures contains 115 individual measures. The development team is able to add a new measure within 24 hours from a user’s request
Historical energy usage data for specific sites needed to be expanded to include a wider range of fuel types and energy units	The platform supports baseline consumption inputs for electricity, district steam, hot water, chilled water, biomass, diesel, fuel oil, coal, natural gas, propane gas, biogas, and on-site generation of resources like solar, wind, biogas, and biomass
The documentation required for the verification process should be described in precise detail	The final release provides built-in descriptions for required documentation through tooltips.
The methodology for the calculation of financial metrics needs to be transparent for the contractors to gain trust in the platform, and so that they can replicate the exact results from their business models	Documentation is provided through the platform’s help desk about all the financial metrics the platform calculates and is accessible directly in the application through a help widget

<p>Contractors want the platform available for use in their own language</p>	<p>The final release of the platform is available in English and Italian. A general translation module has been developed in the back-end, so that new languages can be added in a straightforward standardize process</p>
<p>The section on cost structure needs to be flexible enough so that contractors can account for all the cost types that occur in different projects</p>	<p>The final release includes a flexible way of adding costs to a project, with predefined categories which can accommodate any number of individual cost items within those categories</p>
<p>Personalized technical trainings on platform usage should be available for new users</p>	<p>Every user on the platform receives a short demo and a longer technical training session. Additional technical training sessions are available upon request</p>
<p>A knowledge base should exist on the portal, with information to support platform usage</p>	<p>The knowledge base is available directly through the application, and contains support articles on various platform functionalities</p>
<p>The customer's ability to pay is the key criteria for investment, therefore customer VAT numbers are needed for consideration and should be visible</p>	<p>VAT numbers for both the end-client and the contractor are provided to investors when a project is shared with them</p>
<p>Official investment criteria may or may not be followed, therefore the initial introduction should provide all key data for an investment committee – this must then be followed by face-to-face meetings</p>	<p>Based on feedback from investor interviews, the project report generated by the platform provides enough information for investors to make an initial decision about whether they are interested in a project</p>

<p>Key investment criteria should be clearly visible on the project report</p>	<p>The project report shows all key criteria, among others: customer ownership type, VAT numbers, location of project, internal rate of return, project size, duration, technologies used, stage of project, insurance and certification status</p>
--	---

As the table above shows, all the key feedback items received during the early platform release and in the open beta stage were successfully developed and implemented during the project's duration.

3.2.1 Feature list of the official release

The official release of the SEAF platform includes the following features:

Project valuation. Contractors are able to quickly and efficiently evaluate a project through filling in a series of forms about the project's key information. The relevant data points, among others are:

- Customers details such as VAT numbers, company ownership, company size and sector, contact information
- Site information such as location, baseline energy consumption, tariffs, insurance-related site information
- Energy conservation measures, including monetary and energy savings from each measure
- Financial parameters, including the project's timeline, cost structure, incentives, inflation and tax rates, revenues models, etc.

Insurance. Contractors can fill in an Insurance Statement of Fact, which is sent by platform operators to HSB Engineering Insurance Ltd. for the purpose of issuing an insurance quotation for the project to the contractor.

IREE Certification. Contractors can provide all the relevant information and documentation required to become qualified for an IREE certification. The information is reviewed by an ICP credentialed Quality Assurance Provider, directly through the platform.

Financial and technical due diligence. Platform operators can perform the initial financial due diligence in a fast and efficient manner through the platform. Additional technical due diligence is provided by ICP credentialed partners in the Quality Assurance Provider role.

Document management. The platform provides a robust document management system, together with a list and descriptions of required due diligence documentations. The document system allows for sharing of the most updated documentation to investors.

Multi-user accounts. Contractor accounts allow for multiple users in the same company account, each with their own login credentials. This allows faster project creation, as different users can work together on the same project. The platform supports three core user roles: Administrators (including Quality Assurance Providers), Contractors, and Investors.

Matchmaking. Platform operators can send both individual and bundled projects directly to investors through the platform. Bundling of projects allows contractor to satisfy higher investor requirements.

3.3 Post-release activities

The SEAF consortium continued receiving feedback and developing product improvements after the official release of the platform, in November 2017. In this section we highlight some of the platform improvements implemented in the period of January – May 2017.

New revenue models. Contractors can fine-tune the project based on different revenue types, including performance-based, fixed and hybrid revenues. This means the platform supports projects which are based on lease or loan financing.

New financial parameters. The platform supports a few additional cost and revenue categories, including origination fees, rental and leasing costs, depreciation costs, and customer down payments.

Financial incentives. Contractors can add the monthly cash flows from each incentive to a project, through a simple Excel template. The project report includes financial performance metrics both with and without incentives.

Project cloning. A new feature to easily copy an existing project and create a new one with a click of a button. This allows to create project templates, so that contractors don't have to keep adding the same measures and financial parameters manually each time they create a new project.

Shared documentation. Investors receive the project documentation at the same time a project is shared with them, and they always have access to the latest version of each document.

4 Outcomes and insights

This section highlights the key outcomes and insights of the SEAF project and the SEAF platform as the project's final product. Overall, the project generated a high level of interest and proved that there is a significant market need to bridge the finance gap for small energy efficiency projects in particular. At the workshops and events organized during the project, we found out that more than 95% of small energy efficiency projects fail to find finance when they reach out to private investors. There are significant barriers between the involved parties, including a lack of standardization, language barriers due to different professional expertise, high transaction costs for processing small offers, and the difficulties in identifying and understanding the risks involved in the projects.

All of these barriers make establishing and maintaining trustworthy relationships hard. The SEAF platform was built precisely to reduce the impact of these market barriers, increase the trust level between the contracting parties, and therefore lower the transaction costs and increase the flow of projects that reach at least the introduction phase.

When designing and developing a product like the SEAF platform, it is vital to deeply understand the needs of the users. To achieve that, it is important to know the business practices, day-to-day project management issues, and habits of the users. The key lessons the SEAF team learned during the project are the following:

Flexibility and usability. A successful product in this field needs to be both flexible enough to accommodate all the various business models, but also user-friendly enough so that users will actually want to interact with the product. If using the product is too complicated, it is seen as just another tool that ends up being a barrier rather than a solution.

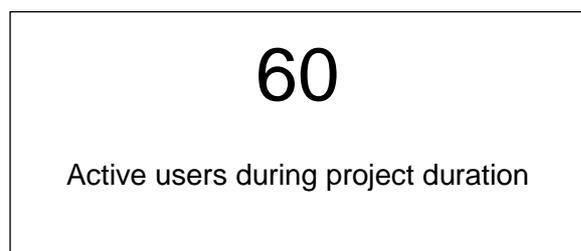
Standardization. One of the key values of the SEAF platform is that it gives investors a project report that always looks identical and contains the same key pieces of information needed to make an initial investment decision. During SEAF, we have seen many variations of business models and reports provided by contractors. This increases the transaction costs and inevitably delays decision making as the counterparty needs time to decipher and interpret the offer. The same principle applies to contracts and sales activities – projects with standardized offers across the board have a much higher chance of getting funded.

Trust. Understanding users on a deep level requires a high level of trust between the platform operators and the users. On the product level, this means adhering to high IT security standards and following industry best practices for reliability and performance. On a business relationship level, we have seen that it is very useful to speak the end-user’s language and understand the key business practices in their countries. While standardization is important, it is also critical to fully understand the differences between markets. Additionally, it is necessary to maintain clear and honest communication between parties at all times.

Education. The SEAF platform finally addressed one more critical barrier in the energy efficiency finance sector: connecting valuable projects with sources of capital often fails simply because of a communication gap between the main parties involved. Aside of actual language barriers, which obviously occur in international business, the different professional vocabularies and concepts applied by contractors and investors often lead to misunderstanding and frustration. Here, the SEAF platform provides a number of tools to support this delicate process, by standardizing the use of terms, and offering explanations on concepts and parameters used. The platform itself is already fully available in English and Italian, with possible other languages added in the future.

Key results

This section presents the main results achieved during the SEAF project.



40

Projects processed on the platform

€9,290,000

Amount of funds approved for financing SEAF projects (pending delivery)

€25,435,176

Investment size of all projects processed on the platform

88

Minimum number of variables tracked per project

€130,890,089

Size of all projects brought to the SEAF partners during the project duration

Statistics on project size and returns:

	Investment size	Internal rate of return
Median	€ 323,800	16.84%
Average	€ 635,872	21.30%

Geographical distribution of projects:

Country	Number of projects
Italy	15
Greece	9
Portugal	3
Ireland	3
United Kingdom	3

Serbia	3
France	1
Spain	1
Austria	1
Slovenia	1

5 Conclusions

This document showcased how the SEAF platform evolved from its earliest release to a finalized product with active users and positive outcomes. The SEAF platform in its current stage supports all of the following functionalities:

- Contractors can create a new energy efficiency or renewable energy project from scratch in a quick and efficient manner.
- SEAF projects contain all relevant information needed to make an initial declaration of interest by investors. This information includes client and site details including VAT numbers to run credit reports; technical information on all individual measures, including consumption increases and decreases, tariffs, equipment lifetime, and savings from each measure
- Flexible revenue models allow users to fine-tune a project to their preferred financing models
- The platform clearly shows which projects depend on financial incentives and what is the effect of those incentives
- A robust document management system allows for a fast-due diligence procedure and instant sharing of documents between the contractors and investors
- Each project produces a standardized report. Projects can easily be bundled and presented to investors as portfolios which satisfy higher investment requirements.
- The platform provides fast and reliable customer support, with built-in help services, dedicated account managers for its users, and direct email support
- Optional services such as HSB insurance and IREE certification are fully integrated in the platform

The SEAF project proved that there is clear market need to increase investment and traction of small energy efficiency projects. The project formed a large stakeholder group and maintained a high activity level of stakeholders throughout the two project years. More than 60 users created 40 projects, and 25 million euros were processed to fund SEAF projects. Therefore, the platform has a clear product-market fit and will continue to serve users after the end of the SEAF project.