D8.3 Project website

www.climatefarmdemo.eu

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List of Abbreviations

CFD	Climate Farm Demo
NC	National Coordinator
PDF	Pilot Demo Farm
WP	Work Package
CFA	Climate Farm Advisors
CTA	Call to Action
TL	Thematic Leader
A&M	Adaptation and Mitigation
DECO	Dissemination, Exploitation, Communication and Outreach
DMP	Data management Plan
BIOS	BioSense Institute

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Abstract

Along with Online content repository, Project website is a common public space where all important aspects of the Climate Farm Demo project will have its outlines visible. It will be a crossing point and place to be for everyone interested to take part or be informed about the project objectives, current activities and what is coming next.

This deliverable is describing how Project website was developed, how key stakeholders were assessed in order to find out their needs and requirements, how it will be managed, what tools, methodologies and technologies were used, and what kind of activities were planned to happen after project website official launch.

Project website was developed in parallel with Online content repository and these two digital infrastructures were very interconnected at several points. Even more, those two were ment to be very compatible and to complement each other for a full scale user experience.

Most of the Project website features were developed in WordPress open source system for online content management which enabled fast construction, secure maintenance and easy user friendly management. Other tools like Figma, Miro, Trello and Typeform were used during development phases while some other will be incorporated in next phases as well.

Framework used for development was based on Agile framework, using adjusted SCRUM methodology, with all SCRUM artifacts and events like: Product Backlog, Sprint Backlog, Use Cases, Sprint Planning, Sprint Review and Sprint Retrospective. This methodology was chosen because BioSense IT development team is familiar with its benefits and because this approach provides fast pacing creation of online infrastructure with high responsiveness for changes happening along the roadmap.

Website design is based on user needs and requirements assessment, low-fidelity wireframes and high-fidelity mockups. After several design iterations and changes made, based on key stakeholders feedback, mockup design was approved and it was implemented at the real online environment at www.climatefarmdemo.eu domain.

Project website as it is after its launch, is just a first version of this digital product. New contents, additional pages and functionalities will be added in accordance with user needs and feedback gained in the months and years ahead.

Chapter 1

1. Introduction

Chapter makes short introduction to Deliverable 8.3 and to Task 8.4. explaining "why" this work was needed for the overall Climate Farm Demo project implementation.

Climate Farm Demo project is a large-scale initiative for climate adaptation & mitigation of agricultural sector in Europe, in order to adapt agricultural production systems to climate change and to mitigate its negative influence on environment by achieving carbon neutral agricultural sector by 2050. The project itself will last for 7 years. It includes more than 80 partners across Europe, and is planned to host 4.500 Demo Events in 1.500 Demo Farms. All this would be impossible to achieve without proper online infrastructure supporting these activities in a highly organised and user friendly style.

Project website and Online content repository are imagined and designed to host all content, information and processes needed for project to achieve its ambitious objectives. By hosting, it is meant to facilitate the visibility, on the website, all actors, like Pilot Demo Farms, facilitation of all Demo Events, showing A&M solutions and practices, presenting all project related information, describing project Objectives, getting to know Thematic Areas and Living Labs, and showcase of all news and updates to the interested parties.

A lot of attention was paid to the user experience (UX) and User Interface (UI) as navigation through website and its functionalities should be smooth, straightforward, well organized and without unessential details. Website is designed to serve for a variety of stakeholders, both part of the project Consortium and for the public who will find out more and be informed about the project activities directly from its website.

For the ones inside of project team, this website will be an entry point to Online content reservoir, and to its Backoffice designed for different project roles with sort of admin access to its content and functionalities. Different project roles will have different kind of access and therefore different possibilities for project's KPIs monitoring and content management. All of this will be more elaborately described in the following chapters.

Chapter 2

2. User requirements

Chapter gives overview on how project Consortium needs and requirements were captured, structured, analysed and later on used as a main source of data for project Website development.

Task 8.4 including project website and Online content repository is aimed to be built on the Nefertiti platform experience. In order to provide full satisfaction of user requirements and stakeholders expectations, in-depth assessment was conducted with selected group of users available at this point of the timeframe. Assessment was done in parallel for Project website and for Online content repository as these two stand side by side, and data collected benefited development of both. This task was done during the first two months of the project and it started by mapping all potential user roles, continued by targeting key stakeholders, and finally creating an assessment scenario and its implementation. At the end of this process gathered data was analysed and outputs were validated.

2.1. User roles mapping

As stated, process of assessment was done in parallel for the project Website and project Online content repository. The user roles were combined as the same roles will use both online infrastructure products. Due fact that assessment was done in the earliest possible moment of project duration, important user groups were unavailable to be reached as they were still not recruited nor they had the awareness that CFD project started (e.g. Farmers, some Advisors, interested public). The list of all roles mapped can be found bellow:

1) Project consortium members, from which:
   1.1) Project coordinators and managers
   1.2) National coordinators
   1.3) Thematic leaders
   1.4) Work Package leaders
   1.5) Task leaders
   1.6) Climate Farm Advisors
2) Farmers
3) Partnering organisations outside the Consortium
4) Users part of the supply chain in agriculture
5) Researchers in climate and agriculture topics
6) EU Commission representatives
7) Media representatives
8) Policy makers
9) Interested public (other)

In the ideal situation, all mapped project Website users should be involved in user needs assessment, but in order to meet initially accepted project commitments and set timetable deadlines, this what not possible, which led us to the decision to select and target a group of key stakeholders available for assessment at this point.

2.2. Targeting key stakeholders

Having in mind that it was not possible to access all user roles, and that not all of them had the same importance, for the project and this task, it was decided to focus on the most important ones, and the ones that we were able to reach.

For example, farmers are very important target group for this project and task itself, but at the period of project Website development, farmers still had not been approached and recruited which made it impossible to include them into the needs assessment. Their needs, and needs of other stakeholders not accessible at the given moment, were brought out indirectly, from other stakeholders who know them and work with them on a regular basis. For this farmer example, that were farmers advisors.

The group of four key stakeholders accessible for assessment at this point were selected:

1) CFD project coordination and management team
2) CFD Work Package leaders
3) CFD National Coordinators
4) CFD Climate Farm Advisors

This group was divided on primary and secondary, where primary stakeholders are project coordination and management team with WP leaders, while secondary group was made of NCs and CFAs, some of them representatives of the project Consortium member institutions.

The most attention was given to the primary group as these representatives have the best overview of the project objectives and steps to come. It was decided that assessment with this primary will be done through one-on-one online in-depth interviews, while secondary group was assessed through online questionnaire.

2.3. Assessment form and scenario design

In order to get consistent information, it was decided that, for both primary and secondary targeted stakeholders the same questionnaire would be used. The difference was that primary group was assessed during online interviews which gave them opportunity to more elaborately express themselves and to tackle additional needs and requirements with additional sub-questions. On the other hand, secondary group was limited with online questionnaire, and had opportunity to express only in a writing form.

Assessment form was aimed to cover all important aspects of the user needs and requirements on one side, and not to be overwhelming neither to long as respondents should keep motivation to answer all of them. Final assessment form included 11 questions, a combination of open-ended and closed ones with predefined answers. List of questions and proposed answers aimed to serve for Project website development can be found in Deliverable 8.2 about Online content repository.

Most participants who joined assessment were familiar with Nefertiti platform and therefore able to answer questions related to this topic. For those who were not familiar, a brief guide about Nefertiti platform was provided along the questionnaire. By getting answers on a question like “What call to action should be in focus at new CFD platform”? development team got useful overview in which direction design of the website should go and what information should be more in focus rather than some other.

2.4. Assessment implementation

Assessment with selected participants was conducted over a one-month period. Response rate during the assessment process was high as stakeholders understood the importance of expressing their needs for the purposes of the project Website and Online content repository development. The evaluation consisted of 9 in-depth interviews with primarily rated stakeholders, while more than 15 representatives of different partner organisations completed the written form.

Impression after assessment was that, for some stakeholders it was too early to list all of their requirements as they expected some more to arise after their project activities had started in a full scale manner. More data and elaborate insights were obtained through online live interviews. This happened as those participants had more chance to express themselves during online meetings, as part of project coordination and WP leaders they had the better overview on expected requirements, and their motivation to participate might be higher due responsibility they feel.

2.5. Analysis of gathered data

After involved stakeholders responded to the survey, collected data was classified and analyzed. Analysis was done in a quantitative and qualitative manner, as there were questions with quantitative and qualitative answers. The assessment form was the same for both groups of selected stakeholders as collected data could be properly compared. Analysis of data collected during online interviews took more time and, as expected, it generated more data in comparison to the written assessment via online questionnaire.

Even before the end of analysis it became clear that some answers were highlighting and capturing the direction where opinions were going. As most important features of the project Website and Online content repository, following three were emphasized:

1) Demo Events
2) Demo Farms
3) Resources/Solutions repository

These were listed from almost everyone included into the survey and gave a strong signal about what categories should take main place into the design and planning activities for this task.

Except above listed functionalities which refers to both project Website and Online content repository combine, for project Website users listed following items:

- News, blog & Event section
- Promoting other projects
- Practice abstracts
- Social media feed
- Living lab demonstration page with useful content

- Networks / Thematic areas presentation
- An easy-to-follow GHG emissions mitigation progress on farms

Similar results appeared regarding the question: “what should be emphasized (Call to Action = CTA) to the end users when they visit the project Website and Online content repository?”. Following answers for CTA to be put in focus are:

1) Find Events
2) Learn about solutions/Find resources
3) Search/locate Farms

Regarding the targets groups of the Website and its Repository, following were top-rated:

1) Farmers
2) Farmers Advisors
3) Project Consortium

There was a small difference between first two places which showed for whom this project is aimed primarily and to whom we should focus while building project online infrastructure. Although project Consortium organisations and its people will manage CFD project and lead its activities, assessed people from the Consortium organisations stated that we build this infrastructure at the first place for Farmers and Farmers Advisors.

In comparison to Nefertiti project (predecessor of CFD), something that respondents would like to keep from it the most, top three are:

1) Demo Event calendar
2) Demo Farm map
3) Farm Demo Training Kit

Except Farm Demo Training Kit which is already hosted at www.farmdemo.eu portal, Event calendar and Farm map are implemented at the new CFD website. With several improvements, these functionalities should provide better user experience.
Part of the assessment questionnaire was about: “are there any changes that should be done in comparison to the Nefertiti platform?”, and, not surprisingly, we found a list of answers among top three are highlighted:

1) Easier access and navigation, meaning better UX
2) Information about climate-smart practices and events should be clustered per Thematic areas
3) Easier registration for actors (e.g. new farmers entering the pool)

These valuable insights are taken into consideration during website design phase.

2.6. Outputs validation

Before design and development of the project website and Online knowledge repository had started, outputs and main conclusions from the assessment had been validated at several levels. Firstly, outputs were validated among BioSense team and WP8 leader as BioSense is responsible for the majority of WP8 activities dedicated to dissemination, exploitation and communication.

Second level of outputs validation was to check it with project management and coordination team which was done during several dedicated online meetings when some of the WP leaders attended as well, and gave their contribution. After collected outputs were validated by these two instances, process was ready to enter the next phase of development.

Chapter 3

3. Website architecture

Chapter elaborates on what kind of structure is set behind Website frontend pages and how Website segments were put in order.

This chapter describes how project Website is organized, segments categorized and what is the logic behind user interface that users see when visit CFD website. With information gathered during needs assessment it was clear that website architecture should enable easy navigation, search of stored content with filters and keywords, login for registered users as a way to enter Online knowledge repository, and smooth sharing of project-related information via news, newsletter and embedded social media feeds.

3.1. Direction of development

Initially, plan for the Task 8.4 was to built two separate online public entities, one functioning as CFD official project Website, and other to host Online content repository with its core functionalities at existing farmdemo.eu domain. In that case, CFD project Website should have been light informative online public space for information about project like:" About, Consortium, WPs and Deliverables, Contact and News" sections. While on the other hand, farmdemo.eu should have been the platform ready to host and facilitate all Demo Farms, Demo Events, and Solution Repository, with Backoffice access for registered users where they could monitor, store and manage content related with those 3 main features.

This starting idea evolved into direction of having CFD website as firstly imagined, and one central online public entity for all agriculture climate-related projects on EU level. Although this synergy would have benefited all of these types of projects, a lot of operational questions emerged which led to a new and better solution for the CFD project: to have one public entity at climatefarmdemo.eu domain which will serve to all CFD project needs, and offer consistent user experience for all of its stakeholders.

Not to reject the good idea of using the advantages of reusing already developed online infrastructure for other climate topic-related projects, verbal agreement was made that online infrastructure code developed for CFD project could be reused for other coming climate projects in agriculture (i.e. Climate Smart Advisors), and that CFD project could host certain content or functionalities on its own servers, or at least its development teams could share their experiences with this topic-related projects.

3.2. Mapping of website segments

Segments of CFD project Website were built mostly on user needs assessment. After survey analysis it was obvious which segments were the most significant. Also, some website segments were drown out by analysing Nefertiti platform and websites of similar EU funded projects, some of them awarded by EU Web Awards (e.g. SmartAgriHubs project website).

Three segments highlighted by the users took the main place during website mapping. Those are:

- **Demo Farms segment** – name of the project itself clearly indicates that Demonstration Farms are one of the strongest assets project will create. With its goal to create database made of 1,500 Demo Farms, it is crucial that this segment must have found significant place at the project Website. These Demo Farms should be easy to register, easy to search and find, and each Farm should be presented in the best possible way.

- **Demo Events segment** – along with Demo Farms, Demo Events are an inseparable part of Demo Farm repository and closely relate with registered farms. Goal of 4,500 Demo Events to be organised during the project duration describes how important this segment of the Website and Online content repository is. Like for the Demo Farms, needs assessment showed that this segment should be easily approachable, searchable and with appealing design for end users.

- **Solutions Repository segment** – by the opinions of key stakeholders it is the third segment with significant value for the project as solutions and best practices tools and methods will be presented in this Website's segment. Solutions Repository, as the previous two, should be easy to find, searchable and with intuitive user experience.

Figure 1. Map of Website segments

Along with these three most important segments, website will have following as well:

- **News&Blog segment** – where all project news and updates will be shared. This segment will be designed to be presented in three different places on the website: on the "news overview" page, on the "most recent news" home page and on the "individual news" page.

- **About Project segment** – including About page, Consortium page, WPs & Deliverables page and Advisory Board page. It is standard segment on most of EU funded projects which describes project more in detail, its objectives and expected outcomes.

- **Thematic Areas segment** – with overview on all Thematic areas included, it will describe each of 12 CFD Thematic Areas in detail

- **Living Lab segment** – will present all 10 CFD Living Labs, informing about progress in each.

All segments will be interconnected and integrated to present uniformed infrastructure and provide straightforward user experience.

3.3. Development of wireframes

Wireframes are visual presentation of how different Website segments will be located, organized and connected with each other. This is the low-fidelity overview on website architecture. It is the last step in design process before high-fidelity prototypes take place which requires a lot more efforts and time investment to be made.

CFD website wireframes shows 5 segments in the website menu, where each segment is subdivided into dedicated project webpages. Except website menu organisation, website Homepage is designed to highlight most important website features and latest information from News and Social Media section. Wireframes were done for Front and Backoffice of the Website.

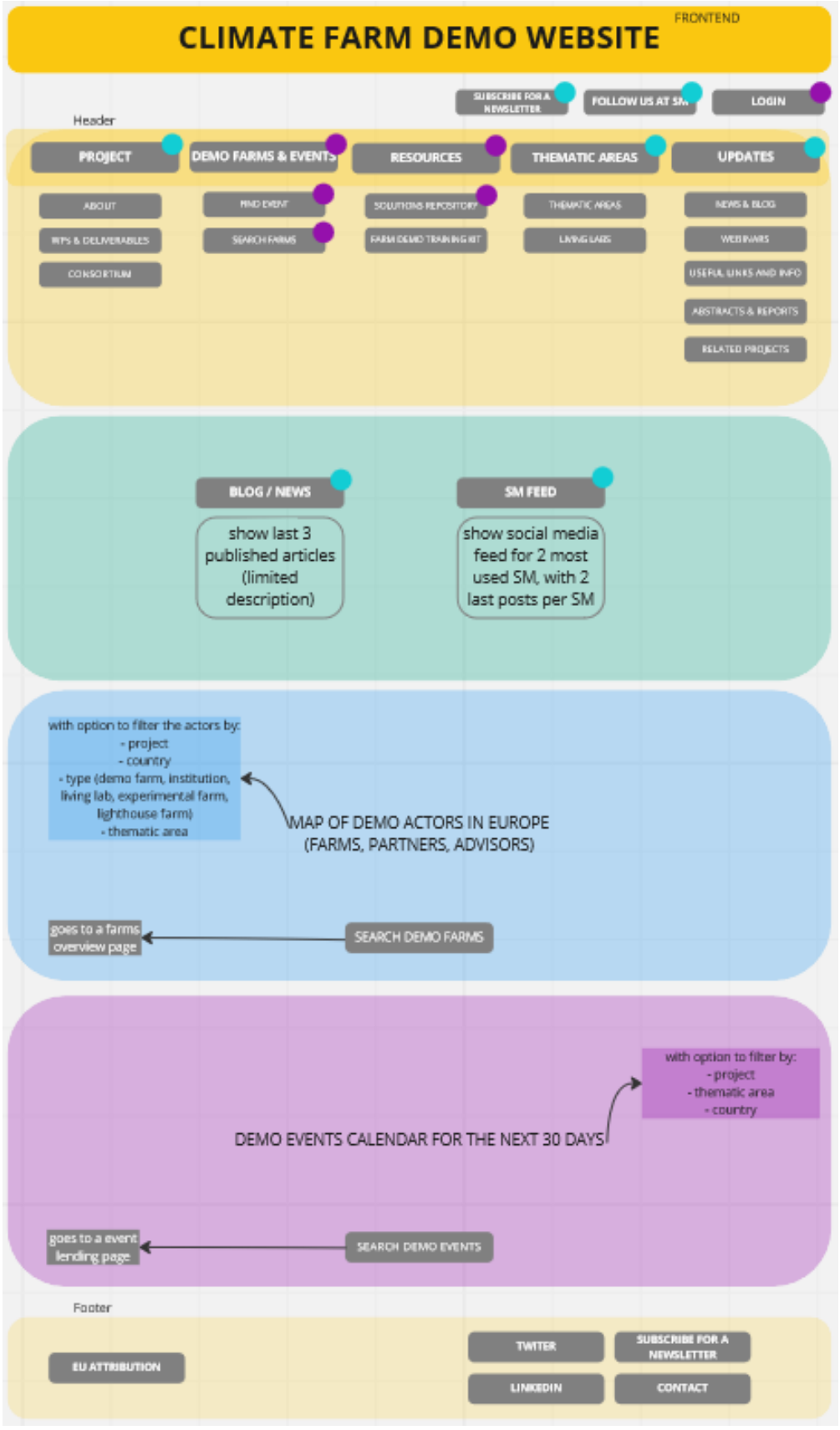

Figure 2. Wireframe of CFD Frontend

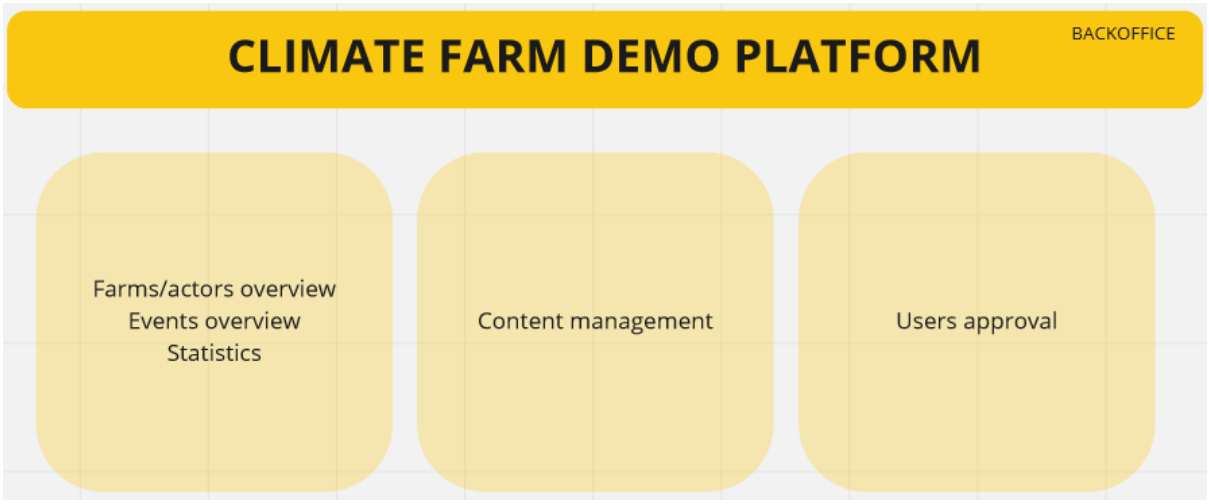

Figure 3. Wireframe of CFD Backoffice

Wireframes were presented and validated among WP8 team after what design process was ready to enter into high-fidelity phase known as mockup design.

Chapter 4

4. Website visual design

Chapter showcases how CFD Website is visually designed, how user interface and user experience principles were put in practice to achieve high user satisfaction and make Website functional.

Before investing in the development of the Website on the WordPress platform and Angular framework, where the final version will be created and maintained, web-design mockups were made for majority of webpages planned to be developed for the CFD project Website.

For all designs made during Website development, visual CFD brand guidelines approved by the project Consortium were used. For the official website font, Montserrat font was used as it is the font of the CFD official logo, and it fits to the overall website design. Colour palette defined during project logo design was applied to the website to achieve brand consistency, while official logo was as well applied at the online infrastructure by the graphic designer instructions.

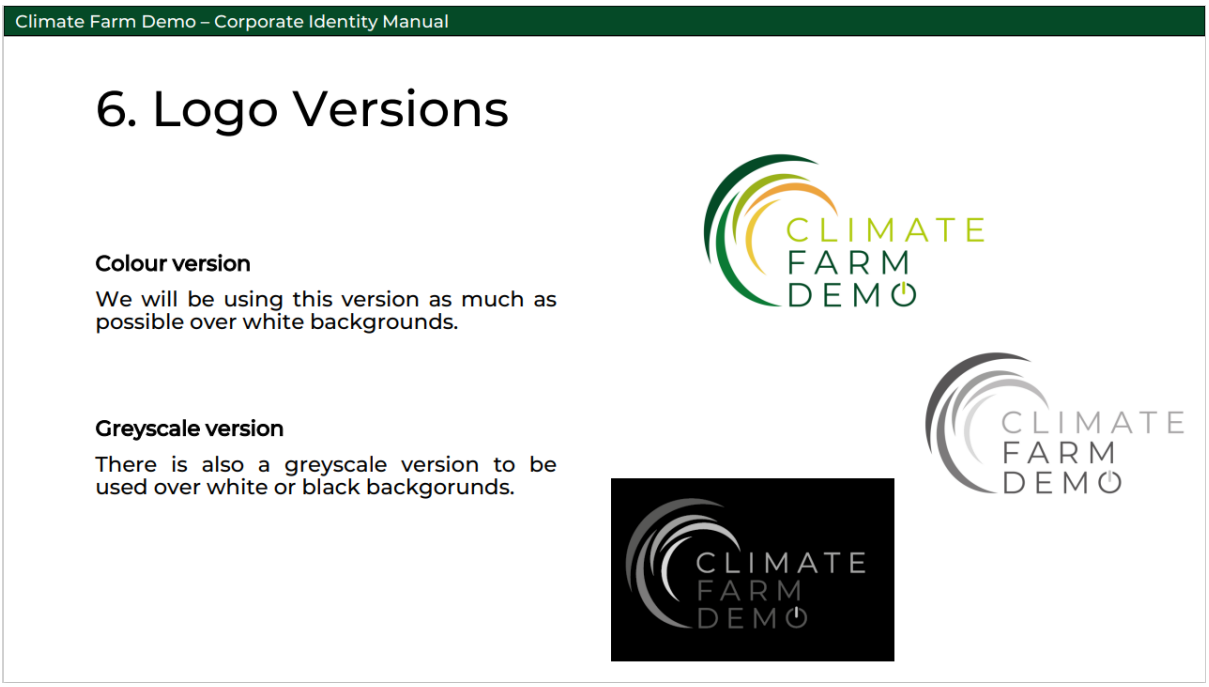

Figure 4. CFD Logo brand standards

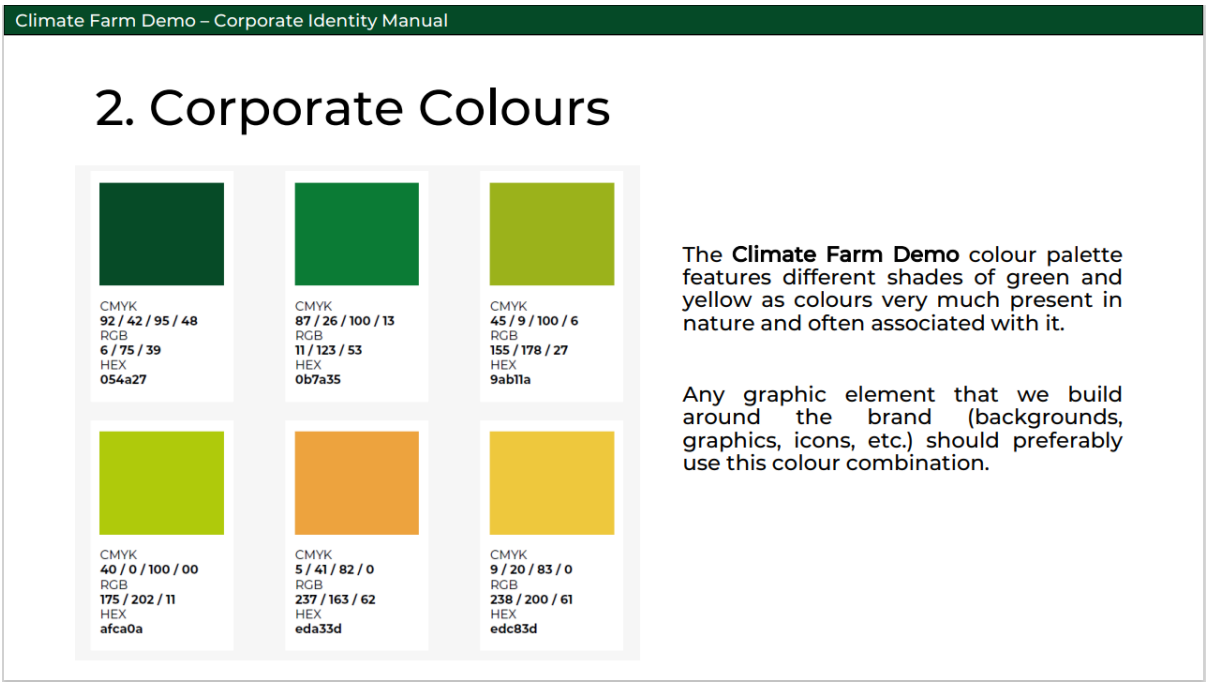

Figure 5. CFD corporate colours used for project Website

4.1. Website mockups

Mockup design was first done when the plan was to develop two public entities, one as CFD informative website, and other as FarmDemo platform aimed to host all farm demo events from CFD but also from other topic-related projects as well. Nevertheless, majority of the mockups created at that stagewere used to validate the concept of unique CFD website developed afterwards. Mockups were made for website pages for which it was estimated that they would be of high significance in satisfying project requirements.

Mockups created by web design specialist can be grouped in five different design segments. One focused on Demo Farm related pages, second focused on Demo Events group of pages, third focused on Solution Repository pages, fourth with focus on informative project pages, and fifth focused on Dashboard pages for registered users.

Demo Farm group of pages are designed to create user friendly and appealing experience for the Farms registration, Farms overview, Farms categorisation and individual Farm presentation. Here, as in some others parts of the website, principles of “clean” design were used, and functionality got advantage over aesthetics. By following the user roadmap and use cases, these pages were generated from the farm overview, going into direction of individual farm presentation. Farms overview is presented with two possibilities, one by actor’s geographical location on a map, and second with farm cards. User will have an option to choose upon its needs and preferences between these two overviews.

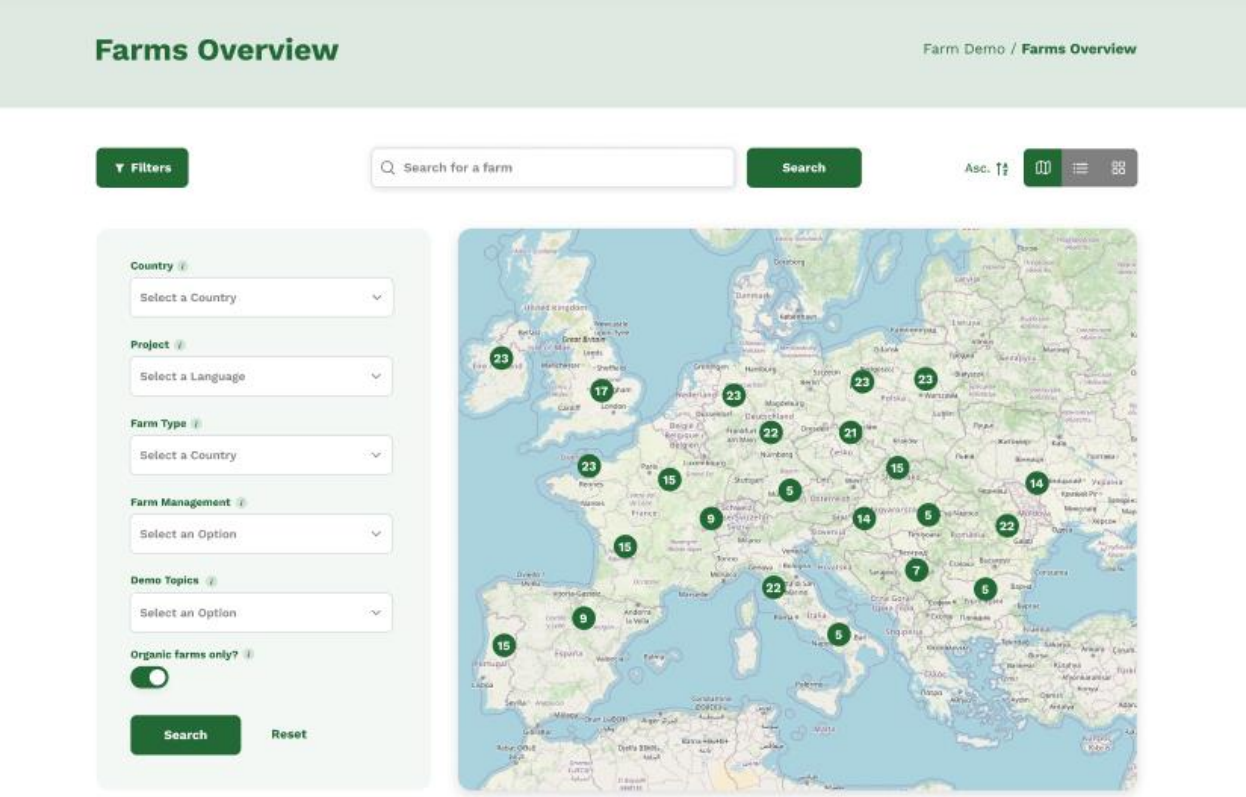

Figure 6. Demo Farms map overview with search filters

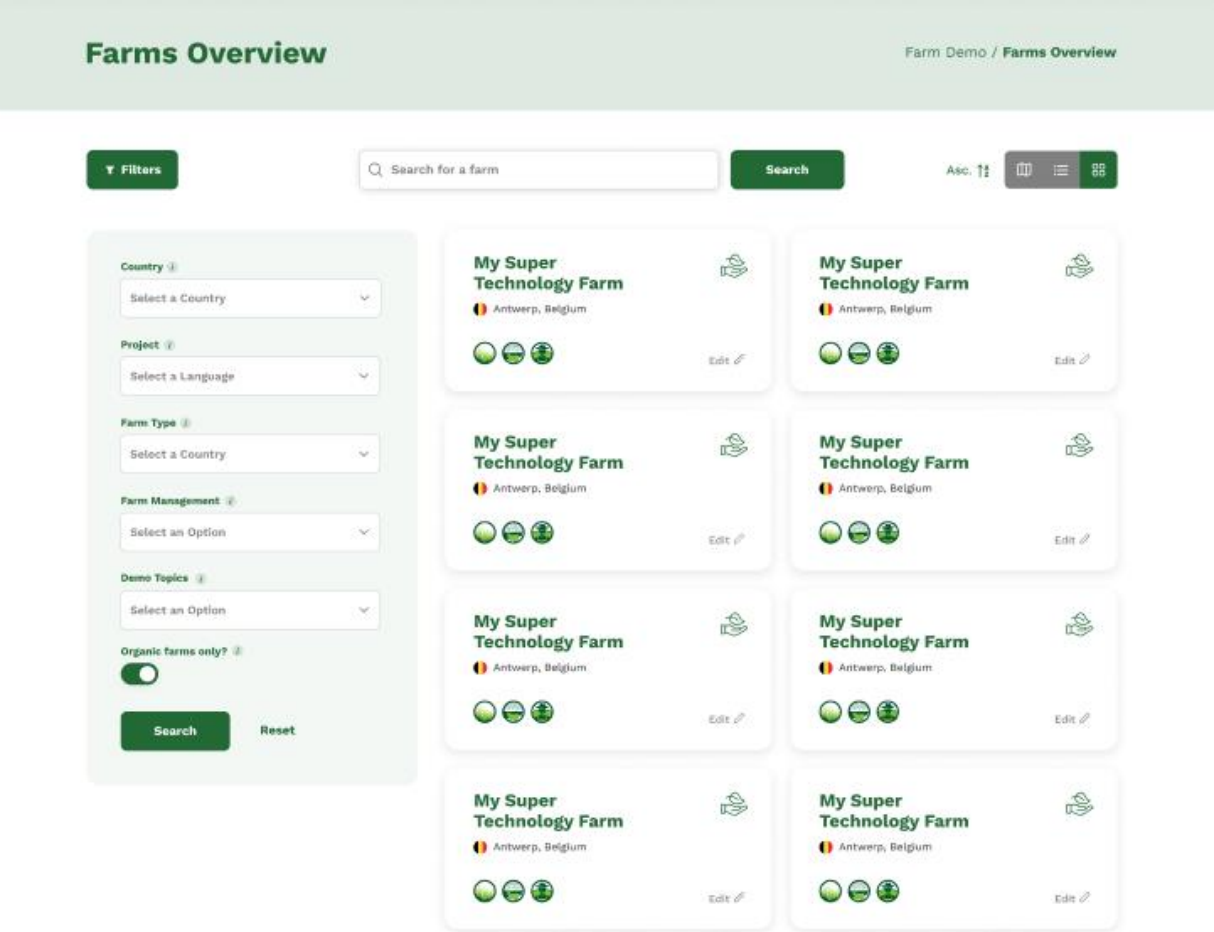

Figure 7. Demo Farms overview in cards form

Farms map was one of the benefits of Nefertiti platform, from which it was duplicated, as rated by the respondents during user needs assessment. Map overview gives interesting and interactive perspective on actors included, while farm overview by cards gives more information about farm details. Both overview types are based on categorisation by several filters like Farm type, Farm management, Thematic area, Country, with possibility to add additional ones in future, based on the needs of the project stakeholders.

Presentation of individual Demo farm is designed in one page that explains the core of its activities and what it can offer to the Farm Demo broader audience. Segments like Farm details, Farm description, Demonstration activities, Upcoming/Past events, Photo/Video content, and Farm contact gives opportunity to the Farm manager to enter all necessary data and to become an equal member of CFD Demo farm community.

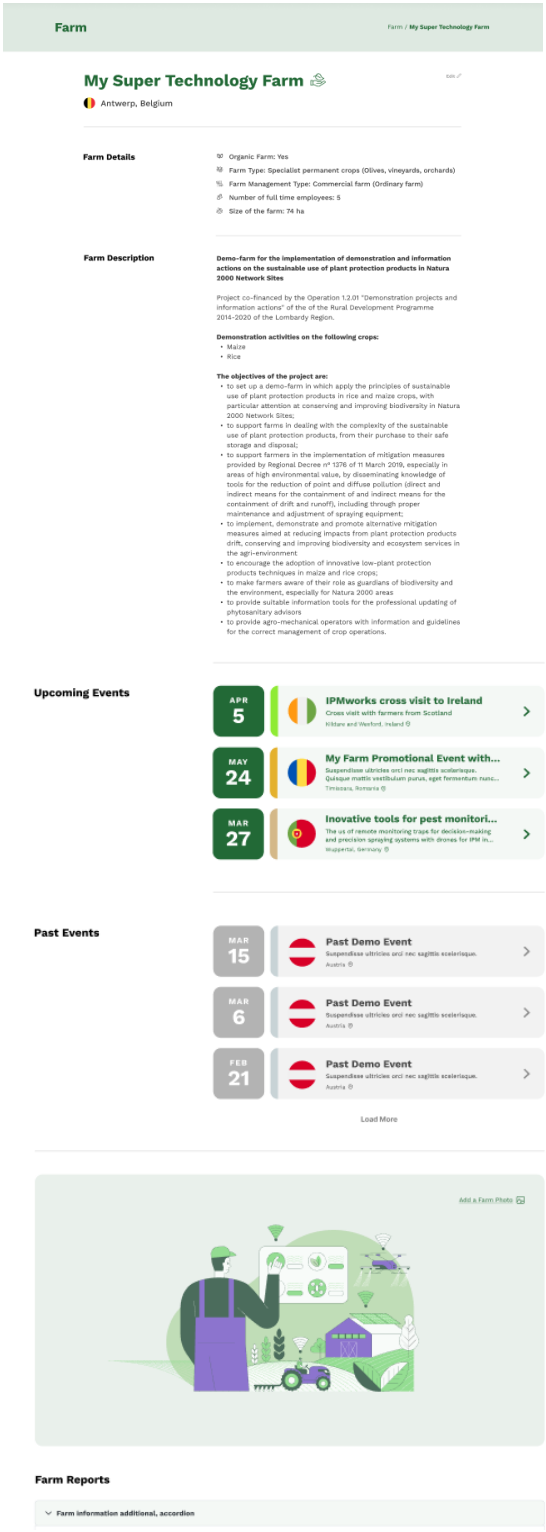

Figure 8. Single Demo Farm presentation page

Demo Event segment mockups design is facilitated by following pages: Events overview page, Event individual presentation page, and Event application page. Design should enable Demo Events, one of the most important project segments, to be well organized, easily searchable with different filters, and to make a Demo Event attractive to its audience by providing all needed information in a compelling way.

Demo Event overview page was based on NEFERTITI's Event Calendar , as most users of Nefertiti platform emphasized that Calendar was a very useful tool when searching for coming and past events. Event calendar design was refreshed, made more straightforward and with better UX. For the users who do not like Calendar view, List view of coming and past events was also designed and incorporated into overview page. Each sort of view provides basic details about the Demo Event, with CTA which leads to individual Demo Event page with much more data about event.

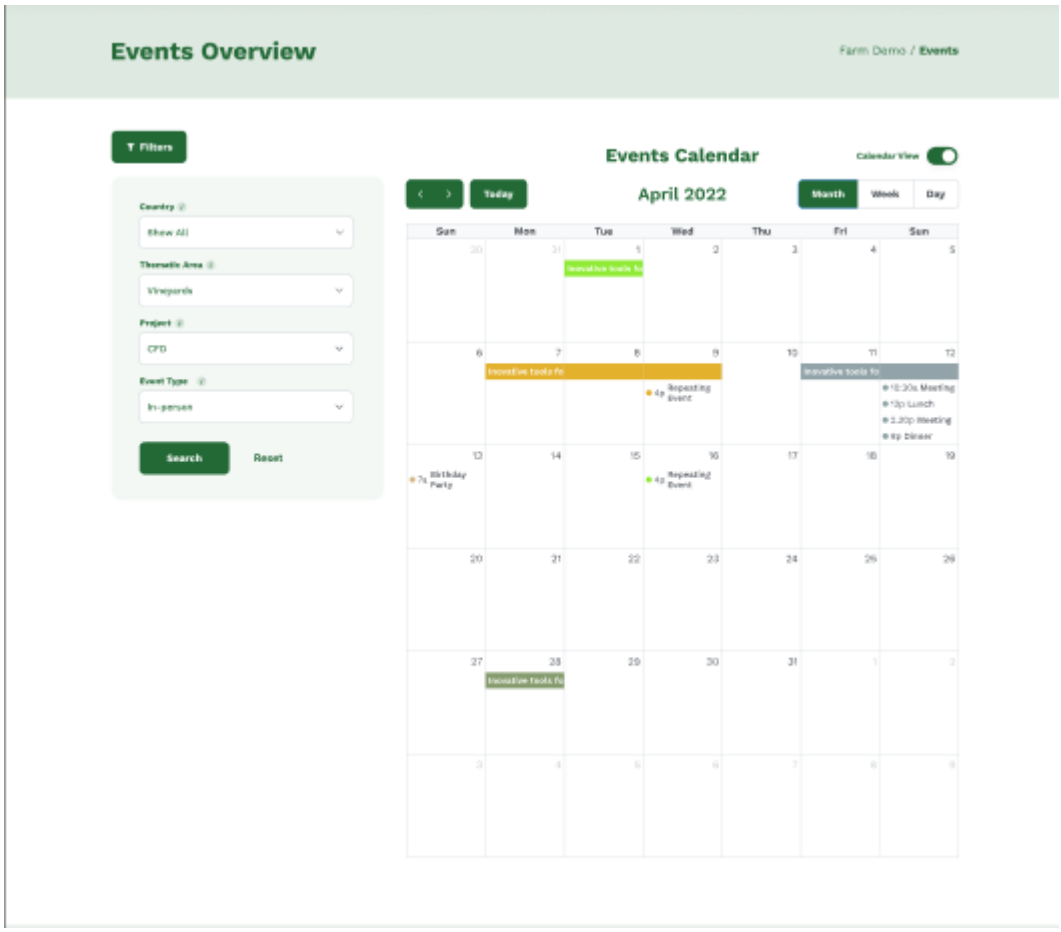

Figure 9. Demo Events calendar overview with search filters

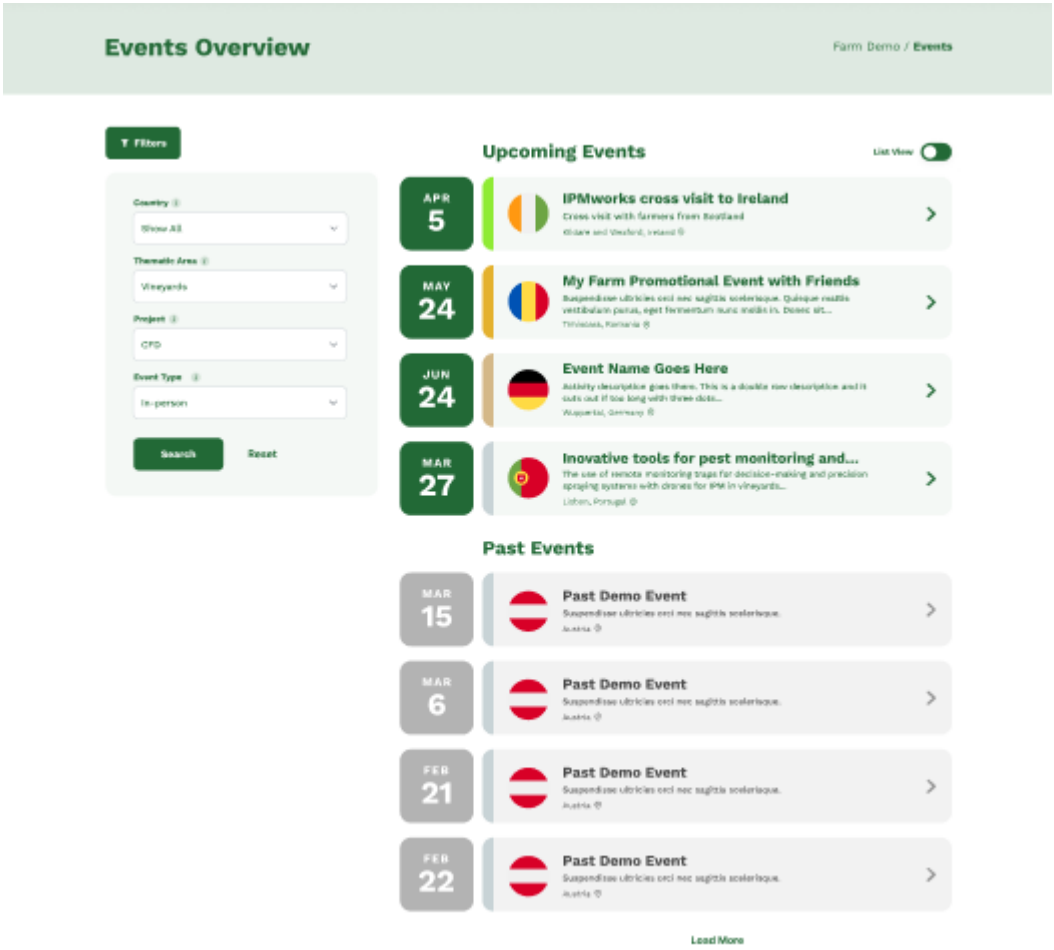

Figure 10. Demo Events list overview

Single Demo Event page shows to the user all necessary data about that event, and enables additional information, if the Event Manager provided additional data during the registration procedure. Firstly, it shows most important information at the top of the page, with Event poster. Bellow, following sections are listed: Event details with narrative descriptions, Contact information, and at the bottom, space for post Event information and resources. Button “Apply” for the event is located at the top and the bottom of the Event page, although still it is not clear whether Demo Event participants will be able to apply through the website or via Climate Farm Advisors directly.

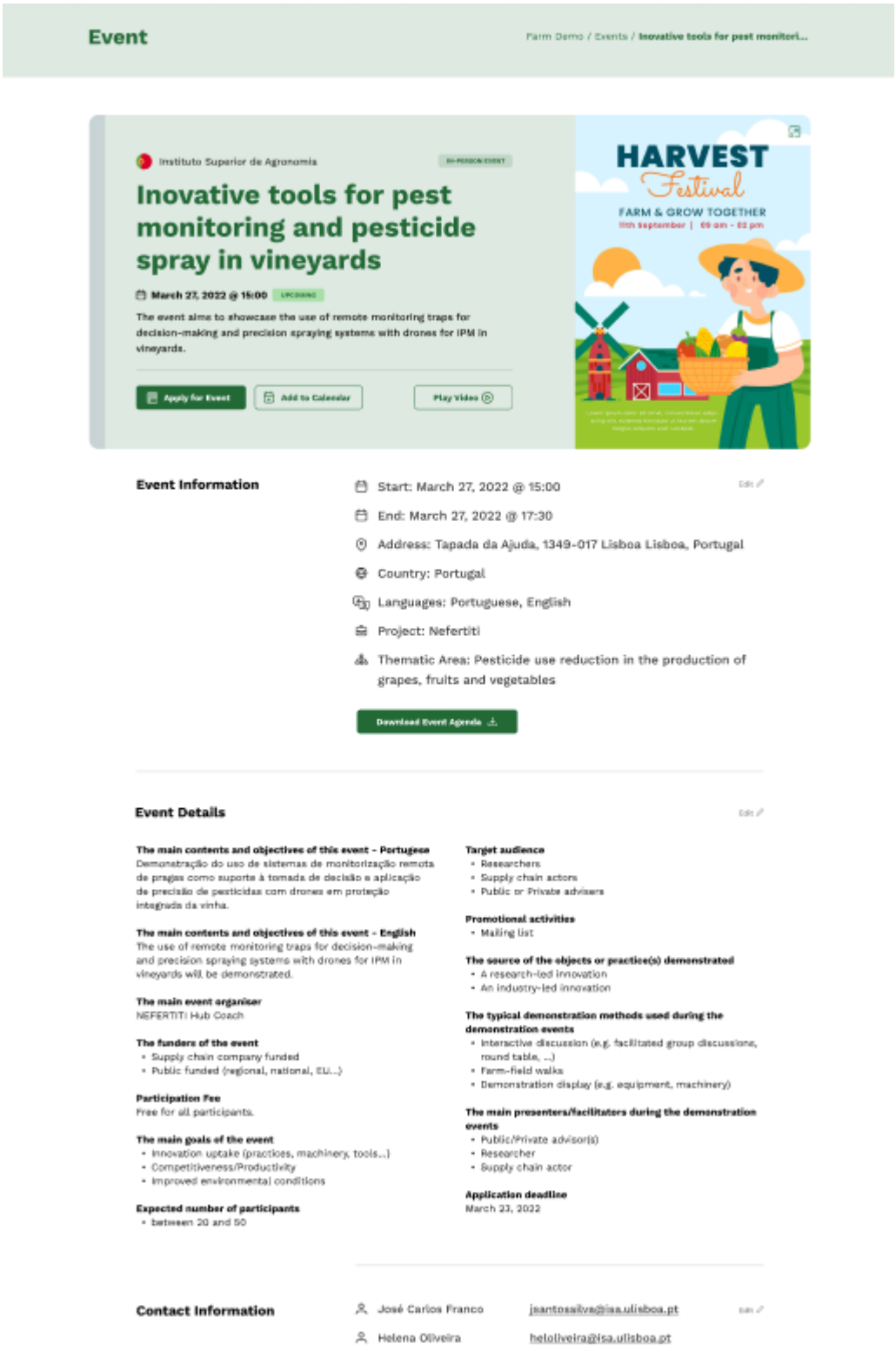

Figure 11. Single Demo Event presentation page

It was imagined that Event presentation page should change after the Event. Reason behind it is that previous to the Event, the most important for the users is to find out about the coming event and become interested to join. At that point “Apply” for the event is the most important Call to Action. When Demo Event is finished, application for the event is not relevant anymore. After each event, evaluation will be done and its outcomes will be published at the CFD Website through the Online content repository. At that point, new Call to Action is “View Reports” as we want users to look at and learn from Demo Event outcomes even if they did not attend to it. That’s why priorities in design for this page change, and post-event reports become the first focus for visitors.

Figure 12. Past Demo Event presentation page with post-event reports

Solutions Repository pages will have similar structure as the first two features previously explained. Solutions Repository overview page will provide users with insight on what and how many different resources, tools and solutions are listed at the CFD Repository. Solutions will be searchable by several filters and keyword text search for the best search experience. Solutions will be organised in two ways: cards view and list view. Both listings give basic details per solution with CTA to check specific solution at its dedicated page.

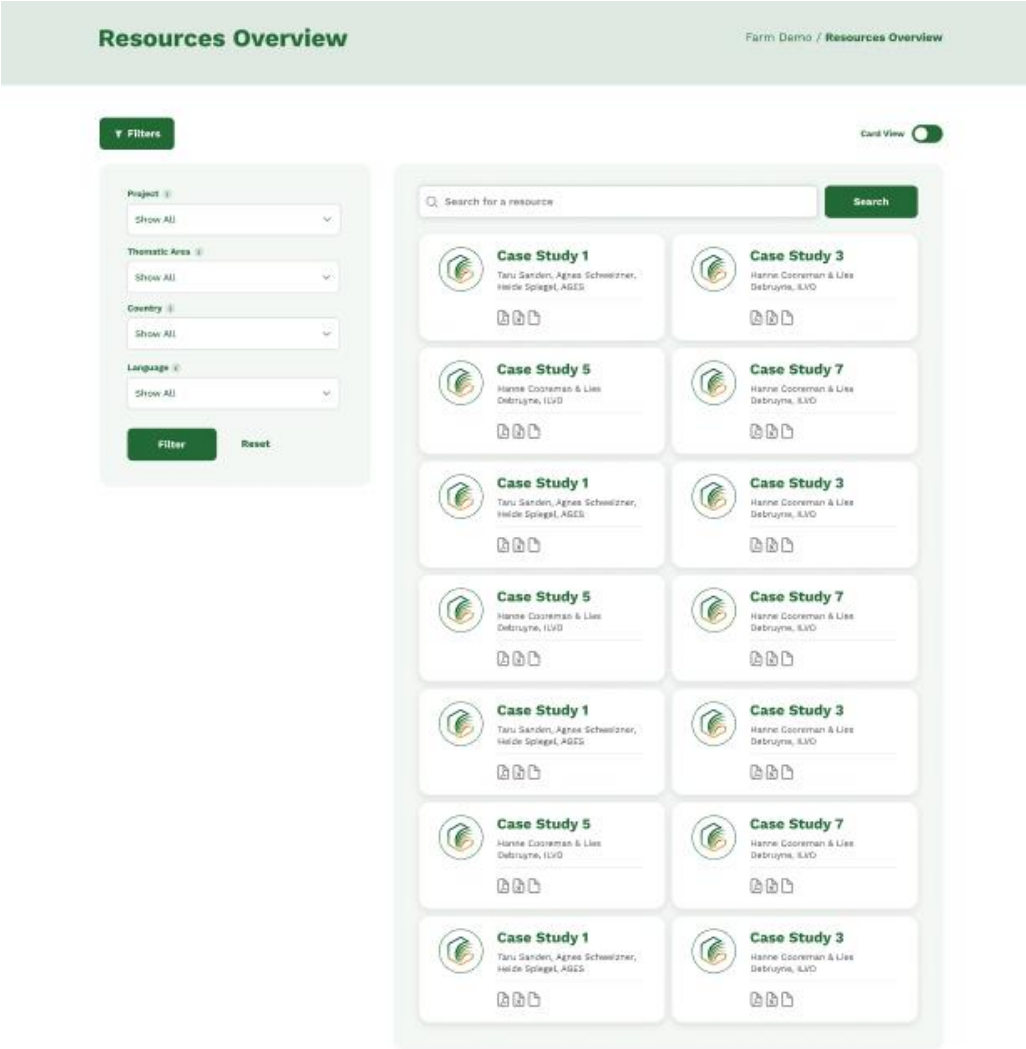

Figure 13. Solutions Repository overview with search filters

Specific Solution page describes Solution with combination of narrative, photo/video and different file types of attachment possibility. This should be broad enough for the vast majority of solutions included into Repository.

Figure 14. Single Solution presentation page

Informative pages of the CFD website include all pages describing the project, its objectives, and informing visitors about latest activities. Informative pages for which mockups were done are: Homepage and News&Blog pages.

Homepage is very important part of every website as it is the landing page for the vast majority of visitors, before they navigate further away. Homepage should also highlight the most important features and messages to the user about the whole project, and try to grow interest for further exploration of the website content. With well organised website menu and CTAs, user should be enabled to navigate through the website and easily find what they search for.

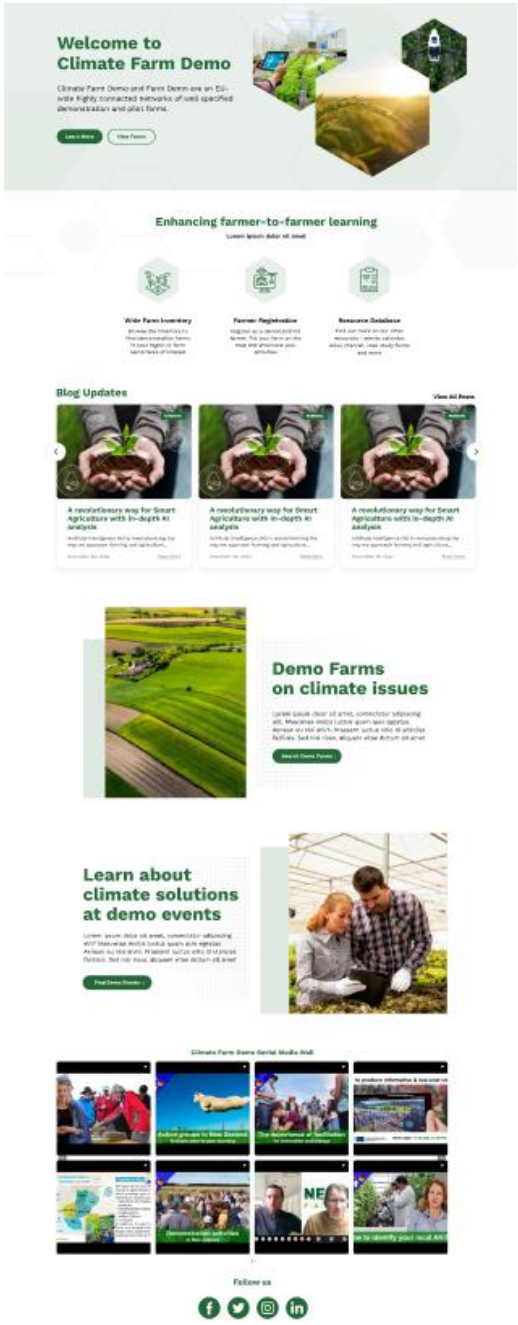

Figure 15. CFD Homepage

CFD website's Homepage emphasizes several important segments of the whole website. One is brief information about the project itself, presented at the top third of the homepage length. Second is emphasizing the 3 most important website features: Demo Farms, Demo Events, and Solution Repository, by CTAs for each of them. Third point of the Homepage is dedicated to communication and dissemination features, including latest news from News&Blog section, latest post from CFD Social Media accounts, and CTA for a CFD Newsletter subscription. Its header and footer are designed to be unique for every CFD website page, giving the sense of uniformity.

News&Blog section is designed in a classic style for this kind of content, as users are used to consume it that way, including News&Blog overview plus specific individual page for each news posted.

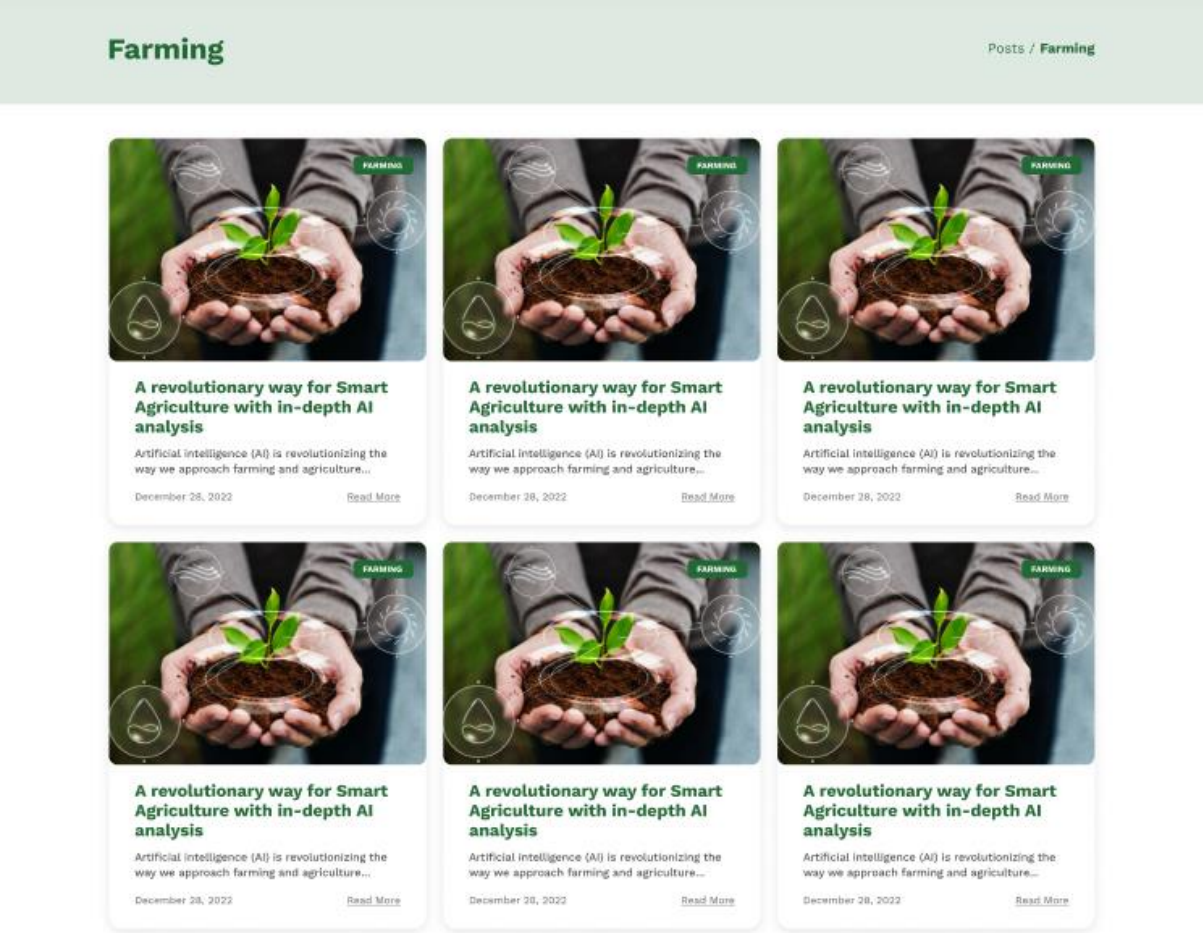

Figure 16. News & Blog overview page

Figure 17. Single News post page

Backoffice Dashboard is designed as part of the Website. It is accessible for registered users only, with contents and functionalities available for specific predefined project roles only. Each member with admin access to the Dashboard, will have a similar interface, but with different admin rights. When a user enters the Dashboard he will be able to see the page with only the options he is entitled to, like "Add a New Farm" or "View my Events", with possibility to edit data for which he has admin rights. Also, he would be able to edit data about his profile. Most of other pages will have similar interface than for non-registered users, just with admin (e.g. edit content) possibilities.

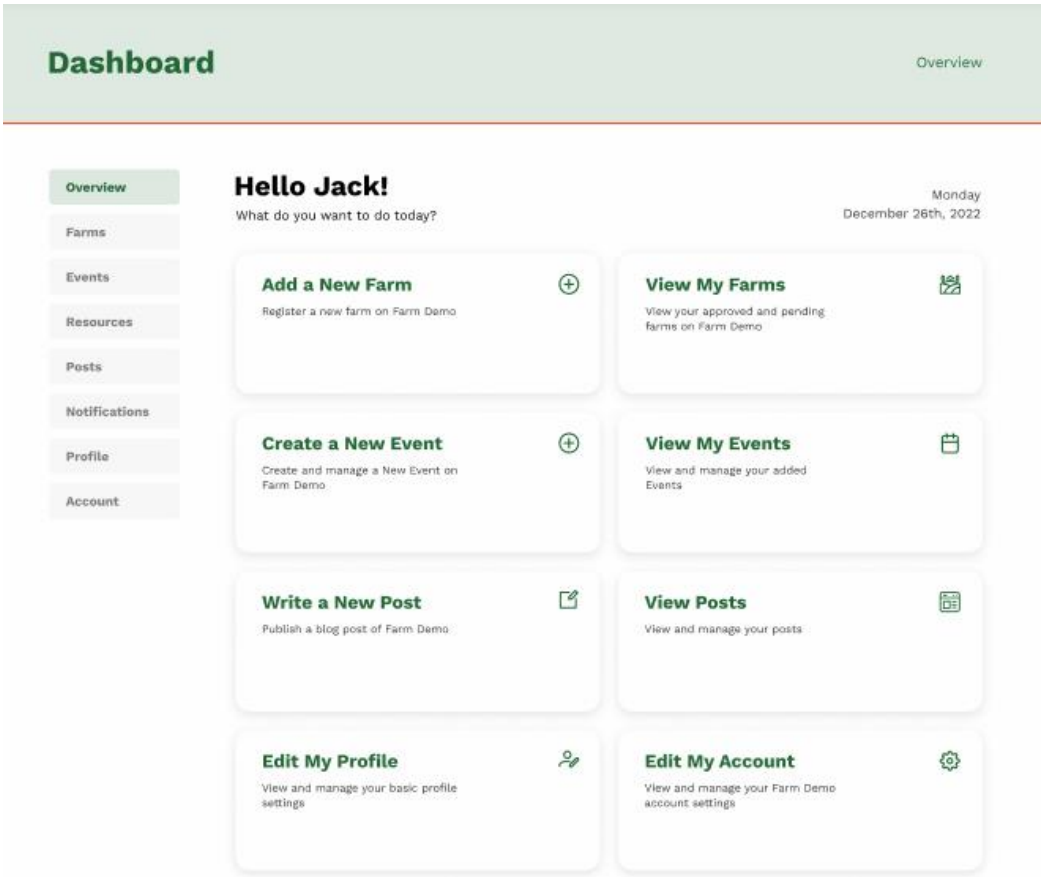

Figure 18. Dashboard Homepage in Backoffice for registered users

For adding new farms, events, news posts, and resources, user friendly registration form was made, to make registration process easy and straightforward.

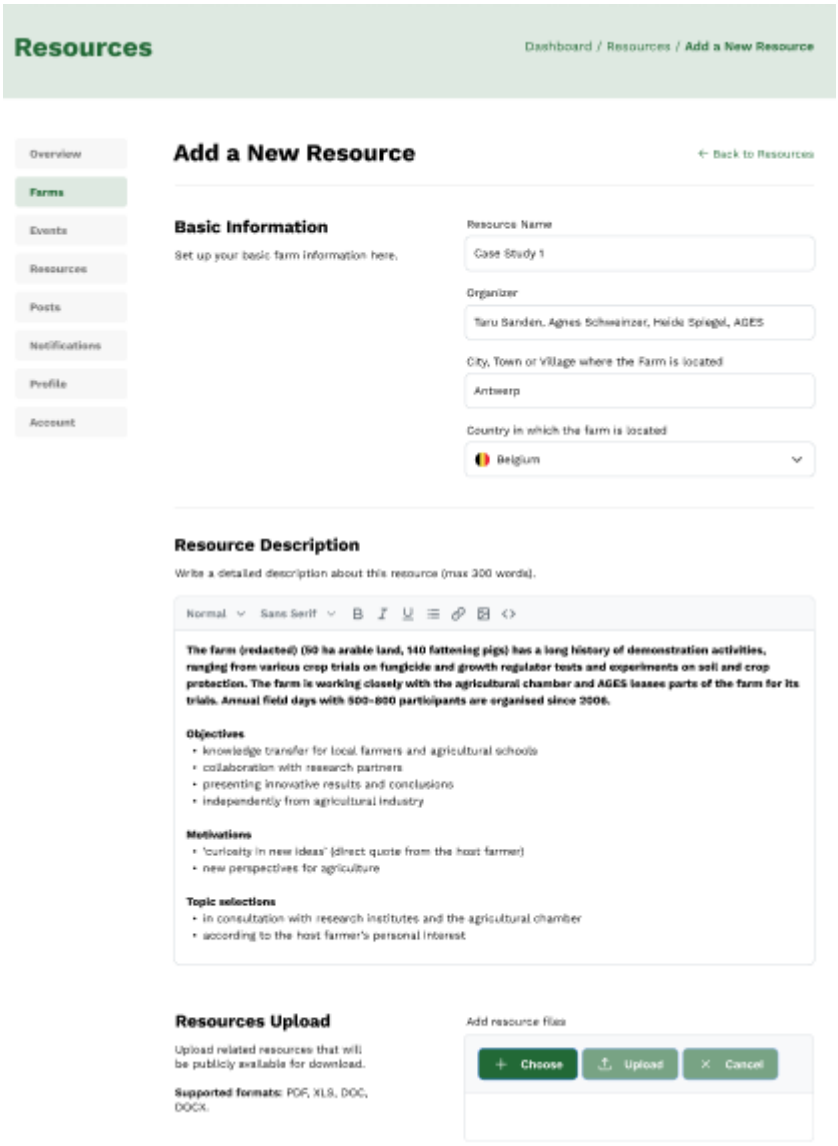

Figure 19. Dashboard page in Backoffice for adding a new Solution/Resource to the Repository

4.2. Design validation

After design mockups were created, it was much easier to validate current development progress with selected stakeholders. For people outside of this task and with smaller experience in web development, validating mockups is something realistic which can be evaluated and discussed. At this point, mockups were created for two connected but separated entities – CFD website and FarmDemo platform. After mockups evaluation it was decided to integrate these two public online entities into an unique one. This change was much more feasibleat this point, as coding of project Website and Online content repository had not started yet. Decision to integrate was implemented at a later phase when work on the final online solution was done by using programming languages and web development systems.

Chapter 5

5. Content management

Chapter explains main sources of content for the project Website, how this content will be managed and how security protocols were applied to make content safe from threats.

At the time of writing this Deliverable, expected state was that content at CFD project will be generated and uploaded only by registered users like CSA, NC, TL and Website administrators, with possibility for users outside of the project inner circle, like Farmers or Researchers, in future, to get the opportunity to generate and add data on their own (e.g. add Demo Farm or A&M solution).

Therefore, registered users only, through website admin Dashboard, will be entitled to add and edit content like Demo Farms, Demo Events, News and/or Solutions to the Repository. Project roles and their authority rights are more broadly described in Deliverable 8.2 about Online content repository.

5.1. Sources of content

Sources of content for the project Website and Online content repository are expected to come mostly from the project Work Packages, especially from WP1–WP8. WP leaders, Task leaders, CFAs, NCs, TLs, and other Executive Committee members since it is highly expected that they will be generating most of the project Website content.

Just for the purpose of Demo Farms presentation on the website, it is expected to upload data concerning 1,500 Farms during this 7-years project. Demo Events section should be filled with data of around 4,500 Demo Events, Demo Events Reports and evaluations, photo/video material, etc. WP4 and WP5 should contribute significantly to the Solutions Repository with A&M solutions tested in real environment and adjusted to fulfil project objectives. WP8 is in charge of DECO activities will generate a lot of data for Website News&Blog section, Social Medias and project Newsletter that will be disseminated, mostly through CFD website.

5.2. Content validation

For the time being, only registered and predefined user roles will be entitled to generate the content at the project Website and its Online content repository. This makes content validation process much more secure and straightforward. Registered users from the bottom of project admin hierarchy will be able to add and edit content uploaded by themselves (e.g. CSAs), while upper administration officers (e.g. NCs, or WP leaders) will be able to add and edit data of their own and added by others. This will enable proper monitoring and validation with possibility for a quick reaction in case of emergency. Authority rights will be given from the Website administrators per preapproved instructions made by project management and coordination Body.

In case project management Body decides to open data uploading rights for users outside the project registered members, it will require validation from specific registered users before this data will be presented at official project Website. This would be done through admin Dashboard available at the Website's Backoffice. For example, if a Farmer who is not recruited by the CFA decides to register they Demo Farm at the Website, that Farm will have to pass through validity check by the CFA or NC before it shows up at the Demo Farms section of the CFD Website.

5.3. Data management

Data management is organised according to the instructions given in CFD Data Management Plan (DMP) (Deliverable D9.1). DMP outlines the process of the data management, and describes the data which will be collected, generated, processed, or reused within the Climate Farm Demo project. In compliance with the Open Access strategy of Horizon Europe, Climate Farm Demo will predominantly facilitate the re-use of anonymized data collected during the project, through data deposited on free data sharing platforms, making the dataset available on the Online project repository and project Website.

By the DMP, it is foreseen that the following types of data will be generated or reused during the project duration:
a) documents (documents, measurements, interviews, surveys, reports, briefs, guidelines, publications) in .pdf, .pptx, .txt, .jpg, .png and similar formats;
b) database in CSV format;
c) videos in MP4 format;
d) pictures,
e) spreadsheets,
f) web and social media contents.

This list is not final and through the course of the project it will presumably extend.

As stated in the Grant agreement Climate Farm Demo project aims to reuse existing datasets already produced in previous or actual research projects, especially NEFERTITI, CLIENfarm, LIFE CARBON FARMING, FAIR SHARE and EJP SOIL as well as the “sister project” namely CLIMATE SMART ADVISOR and the project funded under “HORIZON-CL6-2023-CLIMATE-01-4: Demonstration network on climatesmart farming – linking research stations”. If so, a memorandum of understanding will be drawn up between the projects in which the reuse of these existing datasets will be outlined.

The data both generated and reused within the CFD project will be utilized by various users, from scientific community, other sister projects, policy makers and end-users. All outputs that are to be made publicly available to the public (project reports, deliverables, scientific papers, solutions, demo farms and demo events data) will be incorporated on the Climate Farm Demo official Website. Part of data concerning project monitoring of interest for project Consortium will remain available only to CFD project members with predefined user roles at project Backoffice.

Majority of data produced and collected across most of CFD Work Packages, will be easily findable at project Online content reservoir and project Website. Data will be classified and searchable through filter criteria and, for some segments, via text search using keywords. User navigation at Online content repository and project Website will be done in accordance with User Experience standards, in order to provide every user with easily findable segments of content.

The project will comply with GDPR concerning processing of personal data, consent, breach notification, right to access and right to be forgotten. CFD will secure the highest ethical standards and legal restrictions regarding personal data. This DMP sets the guidelines of the procedures for the data collection, operation, and storage. No processing of special categories of personal data as defined in Article 9 of GDPR4 are anticipated to be collected.

At this point, plan for collection of personal data for the purposes of the Climate Farm Demo project is based on the following:

For the members of the project Consortium:
- names and surnames
- contact details (email, phone number, country of residence), and
- basic information of the persons employer, i.e. project partner organization

For the users outside of the project Consortium, i.e. Demo Farmers, Researches, Policy makers, Demo Event attendees, etc.:

- names and surnames
- contact details (email, phone number, address/country of residence, geolocation of the farm)
- basic information about type of activities they conduct in their business
- languages they understand and speak

For users who will leave their personal data at the Online content repository, they will have an opportunity to choose whether they want or not for this data to be publicly visible in the project Website.

Chapter 6

6. Methodology and technology

Chapter deals with Website's development methodology describing processes and frameworks used, and list main technologies which were implemented during development process.

This chapter answers question ”how did we built the project website?”, “what methodologies, technologies, frameworks, processes and tools were used?”. Timeframe for project website development was condensed as most of the project activities of interest for the project website did not yet started when first website structure and design was being developed. So development team had to work in parallel. This situation contributed to a decision to choose agile and fast pacing development methodology known also as Agile.

Several different technologies were used to develop the project website along with Online content repository. Technologies chosen had to be compatible one with another as the project website had to be able to work as a whole.

6.1. Website development methodology

When time for development is limited and needs and requirements are not completely clear, Agile methodology is the best solution for building digital products such as project websites. Not just that Agile provides faster development iterations, it enables more convenient approach to faster adaptations towards changing user requirements.

Usage of Agile frameworks during development of IT products is a well-known practice which proved successful for many IT projects conducted by BioSense so far. The development team was well aware of its benefits which made its implementation easier and with less obstacles.

For development of the Project website, as well as for Online content repository we decided to use adjusted model of SCRUM methodology. Usually, SCRUM model consists of biweekly sprints which starts with sprint planning. After two sprint weeks sprint reviews and sprint retrospectives are held which closes the one-iteration circle. Number of these biweekly iterations depends on what is being development and on how big is the scale of the product scope.

SCRUM methodology for the purpose of development of Project website was adapted to shorter iterations as the timeframe was compressed due short deadlines for Content Repository and Project website launches. Iteration cycles were reduced from two weeks to one week each. This enabled development team to plan only one weak ahead and adapt to the current progress in a very fast manner.

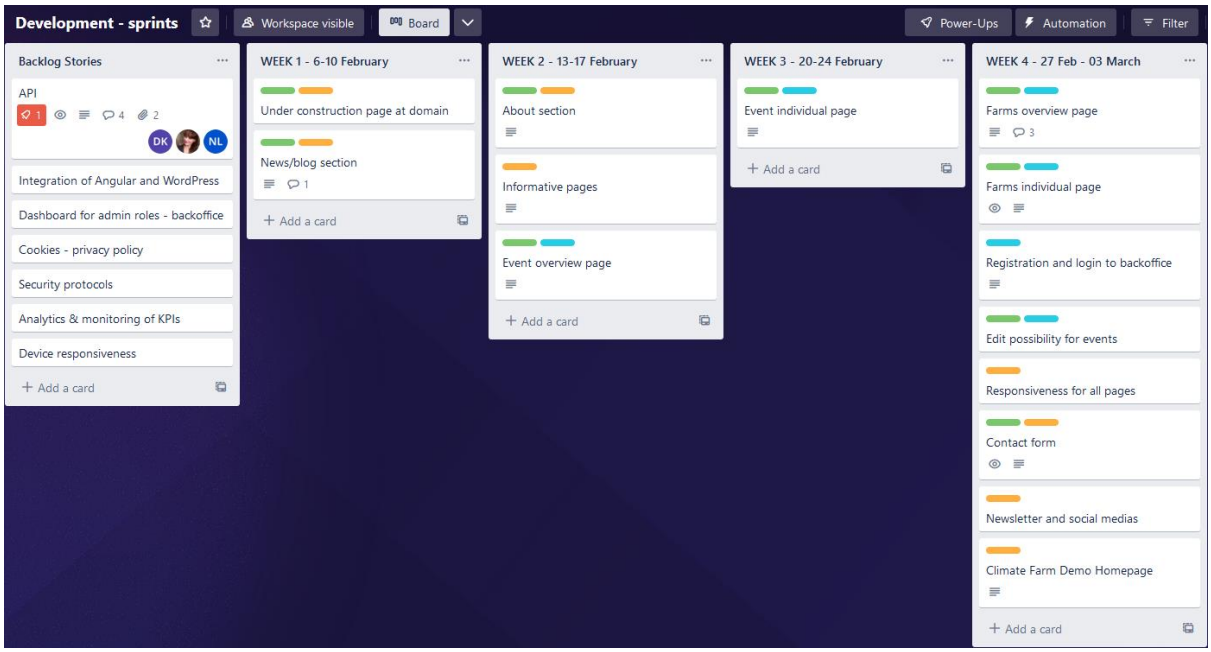

Figure 20. Weekly Sprint Backlogs

Except SCRUM sprints, sprint planning, sprint review and retrospective, a few other artifacts were included into the process. Some of them are Product Use Cases (i.e. User Stories) and Product Backlog which was divided into Sprint Backlog at every Sprint Planning.

Product Use Cases or User Stories is listing of all potential user activities which can be predicted at the current moment. This means that we try to predict what a User might like to do when in contact with our product, to describe each case and later to multiply it with all User roles we defined during User needs and assessment.

Product Backlog is a list of items which contains all possible features and functionalities our product or service should offer to its users. Those items are properly described and its scale should be defined as development team could plan how complex it is and how much time is needed for each item to be developed. Product Backlog is a general source of items to be used when preparing Sprint Backlog which is used only for one sprint iteration. Thus, Sprint Backlog contains only parts of the general Product Backlog and is as a result quite smaller in scale.

During CFD Project website one sprint iteration lasted from Monday to Friday, with Sprint planning on Monday, occasional short daily meetings during the week when needed and Sprint Reviews and Retrospectives on Friday.

Sprint Reviews were time slots when development team presented to the broader team and to dedicated Project Manager what has been done and achieved during the week. That was the opportunity for a team to discuss developed items and give their opinions about the work done. At these meetings was decided if developed items could be accepted as this, or seekedadditional improvements and adaptations.

Sprint Retrospectives were events happening after Sprint Review and were dedicated to evaluation of team work and work process itself. Frequency of meetings, internal communication, task delegation and overall team atmosphere were legitimate topics which were put in question when each member of the team felt need to arise some of these topics for a discussion.

After initial development and Project website launch, Agile framework will remain in use by the development team. We expect that dynamic and frequency of SCRUM events will change as further

development will enter into less pressured and less intensive phase. Before development enter this process with longer Sprint iterations, formal approval of the work done by the project stakeholders will have to be granted.

6.2. Technology and tools used for development and website management

Complex of web based technologies and tools were used to develop, manage and maintain the CFD website. Experience from previous projects and IT products was very beneficial for the development team to choose the combination of best technology practices to implement for this task.

Projects website structure can be divided in two major segments, one with website core functionalities and second, informative part of the website with aim to inform and update its visitors about CFD project progress.

Segment of Project website which is more custom made and will serve closely to respond to CFD project needs was being developed mainly in Angular programming language. Angular programming language provided development team with possibility to “build from the scratch” core functionalities needed for the purpose of enabling CFD main activities to be backed by its online infrastructure. At the firs place here we mean on functionalities like Demo Events hosting, Demo Farms repository, and Solutions (knowledge objects) Repository. All three represents the core of project ongoing activities which will be used during 7 year long project duration.

Second segment with core website functionalities was developed via WordPress. WordPress is well known open source system for content management based on PHP and MySQL databases. Its themes, elements and plugins provides the developer with huge resource to use for different kinds of content repositories. Using WordPress system made development of informative pages faster and more visually appealing. Also, management of content like news, social media feeds and photo/video publication is more straightforward and user friendly when done through WordPress platform. WordPress based Elementor plugin for website design and editing was used to enhance development process.

Pages developed in Angular framework	Pages developed in WordPress
Demo Farms related pages	Website’s Homepage
Demo Events related pages	News&Blog related pages
Solution Repository related pages	Thematic Area pages
Admin login	Living Lab pages
Dashboard related pages (Backofice)	About project related pages (About, WP

Table 1. Website’s segment and pages division per technology used

Task of developers was to integrate and unify both of these segments into one project website hosted at one public domain. For end users, there should be no difference in user experience although different technologies stands behind different website functionalities.

During the assessment, design and implementation phase, several different online tools were used to enhance development experience and results. Some of them are:
- TYPEFORM - tool for assessment via written online questionnaire: www.typeform.com Typeform is a great research tool with extraordinary user experience (UX) which makes questionnaires fun and easy to participate.
- MIRO Boards – visualisation of ideas, wireframes and segments is very important part of development process. Having thoughts and structures visualised builds common understanding of what needs to be achieved and keeps everyone updated. Visualisation boards available at www.miro.com is a very user friendly tool for creating several boards, structures, roadmaps and items which can be easily shared among teams, partners and stakeholders. Also, it enables co-participation of team members who can also join and give their contribution.
- TRELLO – is a web-based application for creation of lists mostly designed in KANBAN style. This tool which can be found at www.trello.com is well known among IT community as it is easy to use, give strong overview on Backlog and tasks, enable Sprint organization and equal participation of all included team members.
- FIGMA – Online content repository will be successfully used only if its user interface satisfies their needs and follow the best user interface (UI) practices. Tool available at www.figma.com is one of the two nowadays most used collaborative interface design tool. It enables prototyping before even first line of code is made, which significantly saves resources and reduces time invested into development. Figma was used by BioSense team to generate mockups of most web pages, those publicly available to broader audience as well for those accessible only to personas with preapproved access.
- ELEMENTOR PRO – is a WordPress based plugin for easier creation, management and hosting of WordPress websites. With its drag and drop of design elements, it helps in development of modern websites with great user experience. Elementor Pro offers great variety of themes, addons, animations and visual effects which significantly makes websites more appealing to its users.
- GOOGLE SITE KIT & PLAUSABLE ANALYTICS – for the purpose of tracking website performance and analytics, currently bot of these tools are installed. After determination of which one is producing most valuable results for the purposes of the project, the second one will be removed from code as one should cover analytics requirements. Google Site Kit is more known and the team has more experience with it, while Plausable Analytics is EU based analytics tools which gives it certain advantage.
- MAILCHIMP – project Newsletter is a power tool to keep users engaged and informed about the project activities. Newsletter button is embedded at CFD website to collect as much as possible followers. For the purpose of Newsletter management MailChimp platform will be used as one of the best known tools for this kind of activities, with friendly user experience and very stable platform.

Combination of all of these listed technologies and tools created opportunity to develop digital products of interest for CFD project. We expect that during next project phases, additional technologies and tools will be incorporated to the current system.

6.3. Website security

To insure that all website and online content repository data remain safe, everything is hosted at BioSense owned Data Center. As most others, BIOS Data Center has backup power supply in case of electricity power cuts supported by UPS (Uninterruptible Power Supply) and power aggregates,fire protection system and protected physical access to the server space, accessible only by authorized BioSense Institute employees. Virtual access to the database and servers is possible only via SSH client (Secure Shell) network communication protocol that enables two computers to communicate. Access is possible only from specified web addresses while authentification is done by SSH keys.

Institute uses Novi Sad University official internet network, part of Giant internet network which makes internet connection with very fast bandwidth. Database servers are separated from applicative ones, with daily daily, weekly and monthly backups, to prevent any major data loss.

Communication between web browser and servers for the website domain is done exclusively by HTTPS protocols (Hypertext Transfer Protocol Secure), with Let's Encrypt TLS (Transport Layer Security) Certificate. TLS is an authentication and security protocol widely implemented in browsers and Web servers, while Let's Encript is a free, open certificate authority provided by ISRG (Internet Security Research Group).

Access to WordPress management administration is possible only from BioSense Institute Network, or via BioSense VPN (Virtual Private Network) approved to user by BioSense web security team. This makes management of WordPress developed pages very secure and under strict control.

Regarding users login to CFD website Dashboard, it will be possible only for predefined user roles. List of people filling these roles will be registered by the website administrators (BIOS) and their credentials will be shared in a secure way. To prevent unregistered and unwelcome users or bots to enter websites Dashboard, LLAR (Limit Login Attempts Reloaded) will be used, as this system blocks unregistered users from multiple attempts to brake into project admin pages.

Since hackers and spammers are mostly targeting blog pages for their attacks, we are using Akismet Anti-Spam plugin for stopping them before they can take any unwanted action.

Chapter 7

7. Further Website development

Chapter gives insight on future of Website's design, functionalities and development progress, with its plan for incremental improvements in longer iterations.

CFD Website developed and explained in this Deliverable is just the first version of this digital product. Right after website launch deadline, website will be shared with project Consortium audience and feedback will be asked from project members. After first feedback iteration, development team will continue to adjust, update and upgrade website and its functionalities to meet requirements on a monthly basis.

By having in mind that trends and technical requirements for IT online products like websites are evolving very fast, BIOS team is planning to do annually website and Online content repository Review. After each one, visual refreshments and incremental upgrades will follow. Such a process is necessary, because without this practice, CFD website won't remain visually and practically appealing to its target audience. Any major visual website refreshments will be done according to visual brend standards or accordingly to future Executive Commity decisions.

Few important work iterations will happen after website launch. Internationalisation of the website, meaning its translation to all EU languages will be done in following months, after all important stakeholders validated website and Online content repository features, structure and design. Website responsiveness to other devices (mobile, tablet) next to desktop/laptop view is planned to be done also after key stakeholders validate the work done so far. Furthermore, interoperability, as explained in Deliverable 8.2, will come in place only after CFD online infrastructure gather enough amount of valuable data to be shared probably via API (application programming interface) with topic-related projects and its platforms.

Chapter 8

8. Conclusions

Chapter briefly sums up what has been done so far regarding Website's development, how this should influence project activities and what is the key of success for future Task 8.4 contribution to the CFD overall goals.

Climate Farm Demo is a big scale project with very ambitious agenda to foster adaptation of agricultural sector to climate change and shift EU agriculture towards carbon neutrality by 2050. Nine Work Packages and more than 80 partners are set to implement all needed activities as precondition for a project to fulfil its objectives and make huge impact in this crucial industry. Nowadays this will be viable only with strong and well-organized online infrastructure supporting most of all CFD WPs and most of its project activities. Project website at www.climatefarmdemo.eu domain, together with projects Online content repository are made to serve this goal and to enable all project stakeholders to progress and achieve expected outcomes.

For the stakeholders outside CFD Consortium and for the public, CFD website will be the first and most prominent contact with the project during its 7 year-long official duration. How the website is made, maintained and filled in with valuable content is something which will influence external stakeholders and inform them about project progress, news and most important –results.

The key of success for Task 8.4 will be constant openness of the website development team towards sincere feedback and new requirements which will be used as a resource for online infrastructure improvements and adjustment to the evolving needs of the project. As more project activities start to deliver results and generate useful data, it will influence and enrich project website and provide end users with a content worth visiting and using. BIOS team, by working on project infrastructure, will be on its path to make all Climate Farm Demo members proud to belong in such an important initiative and add to its overall success.

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