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Curriculum Development for Sustainable Seafood and Nutrition Security

Project Acronym

SSNS

Deliverable 2.1: Specifications of SSNS VLE

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1. Introduction

The objective of this report is to present the minimum requirements for the development and completion of the SSNS portal. The portal will include various sections, with different functions. More specifically, it will consist of:

- ✓ Project related information;
- ✓ The e-Learning contents for the target groups of the project;
- ✓ Links to useful sites.

For facilitation purposes, the platform will be hosted and incorporated into the project website.

2. Portal Structure

For the identification and development of the portal requirements, the following has been taken into account:

- ✓ The training modules and their structure;
- ✓ The requirements for the provision of a solid e-Learning platform, bearing in mind the necessities and restrictions of a course provided through distance learning;
- ✓ The set up and restrictions of the technology used for the development and maintenance of the project website.

The SSNS portal will mostly provide the e-Learning part of the training developed under the project. In specific, the partners will work together in creating an e-Learning platform, which will incorporate all the training modules developed in the framework of the outcome 2.1.

The e-Learning platform will also include an e-assessment tool.

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Another section of the portal will be a forum. A virtual forum will be developed for end-users' discussion and peer learning, networking and informal learning. In the forum, users can meet, exchange experiences, and participate in group activities. it will be based on web2.0 tools and a forum to be monitored and updated by EUROTraining).

3. Approaches to e-learning platform design

The e-learning design and development consists of five components, which are considered to be essential for the successful provision of targeted and effective online training. These are Audience, Course Structure, Page Design, Content Engagement and Usability. The analysis of each one of these is presented below:

- ✓ **Audience:** This refers to the target group that will be invited to participate in the online training. In this framework, it is important to take into consideration the expectations of the online training in terms of learning outcomes, prerequisites for the target group to be able to participate, the result of their participation and successful attendance and whether they can get certified for the new knowledge gained. In this context, the background of the target group should be taken into consideration and, most importantly, their expected IT literacy. Finally, another very important parameter to be considered is the learning environment of the audience; specifically, the designer of the platform should take into account the interactions and complementarities with face-to-face sessions, if any, and the possible distractions and time available to complete the online courses.
- ✓ **Course Structure:** This refers to how a course is designed for e-Learning. In particular, it includes the logic upon which the different training modules and sections are structured and the flow of information. In general, smaller sections make the courses easier to

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complete, rather than long ones. Organisation and grouping should facilitate retention of information. Also, higher interaction levels have proven to be much more effective; incorporating exercises and/ or quizzes in a good balance during one course maintains the interest of the learners to a much higher degree. The SSNS e-Learning platform will include all material developed under Intellectual output O3.

- ✓ **Page Design:** The design of the page is for the online courses what the teacher charisma is for the face to face sessions, with some very important elements which should be taken into consideration. More specifically, the navigation should be intuitive, i.e. easy and simple to follow, the appearance must not interfere with the learning process (the layout is very important, but it should not distract or confuse the learner), there should be a good balance between texts and images to help learners understand complex issues and facilitate the learning process, text formatting consistency is very important and segmenting topics by steps, phases, or concepts will help the learner to assimilate knowledge within the online courses.
- ✓ **Content Engagement:** This refers to how the learner interacts with content of the course. Some ways to increase learner engagement are the use of hyperlinks for reference material, additional information and definitions, the incorporation of graphics, animations and simulations, incorporation of quizzes, tests and skills assessment, while keeping activities to the objective of the online course.
- ✓ **Usability:** This refers to the testing of the e-Learning content and applications and navigation. Some of the issues that need to be taken into consideration are whether the links provided work properly, if the activities function as designed, if the content provided is correct in terms of spelling, grammar and syntax, if the graphs and other interactive material is visible, whether they are still available with different browsers or equipment,

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if the course works properly on the server which has been set up and, finally, if the course objectives are met.

E-Learning approaches have already gained much ground over the last years. The number of courses provided online, either solely as distance learning or as parts of a blended course is increasing very rapidly. Nevertheless, one should take into account that e-Learning is probabilistic, i.e. a "perfect" approach does not exist, due to the diverse contexts where the e-Learning tools are applied, as well as the diversity among the trainees and the trainers who develop the e-Learning courses. Another issue to be considered is the level of interaction on behalf of the teacher, which is not predetermined and uniform.

Moreover, e-Learning is subject to constraints, mostly related to technological issues. Additional issues to be considered are the experience and availability of the staff (training and supporting) responsible for the coordination, delivery and support of e-Learning and the amount of time and funding made available for the e-Learning practice. Therefore, e-Learning should evolve as rapidly as technological tools are emerging, so as to take advantage of the new opportunities created, to achieve more effective results.

Based on the aforementioned, an e-Learning component should possess the following characteristics, so as to achieve the educational objectives set out at the beginning of its design:

- ✓ Usable, in the sense that it is available and accessible to the target group and/ or the (potential) participants (visitors and students).
- ✓ Relevant and specific to the trainers' needs, roles and responsibilities in professional life. The newly acquired knowledge should enhance the skills and competencies set during the course design and the core aim of the content developed should be to achieve that.

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- ✓ The e-Learning content should be divided into easily manageable chunks so as to facilitate the assimilation of new knowledge and to allow for easy scheduling of the learning time.
- ✓ Promoting professional learning, by creating new opportunities and improving professionals' skills and competencies, contributes to the improvement of the position of the participants in the labour market, promote problem based learning, action learning and collaborative methods.
- ✓ Promoting effective learning design, tailored to address the needs of each group of participants.

The following paragraphs provide an analysis on the requirements in terms of the context and technology to be used for the purposes of the SSNS project.

4. Contextual requirements

In the following sections, the major contextual requirements of the e-learning platform will be analyzed.

4.1 e-Learning platform

The most important element of the SSNS portal (which in fact will be the gateway to the platform) is the provision of an e-Learning platform, which will serve the purpose of supplementing the training modules developed in the framework of the project. The developed training modules will be adapted to the project target group.

The analytical presentation of the training modules, their estimated duration and the summary of their contents will be provided in Outcome 3.

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All the training modules, which will be developed under O3, will be available through the e-Learning platform for all the trainees and trainers who will participate in the two cycles of the e-training. Moreover, online validation tests will be developed that will enable trainees to monitor to which extent they understand the contents of the developed modules. These tests will also serve as a tool for visitors and students of the openly available material in order to assess their knowledge and perhaps motivate them to follow the offered training either by participating in the e-courses or by adopting a self-paced approach.

Registration will be open for any interested professional who wishes to access the material developed by the partners. It is the strong belief of the consortium that the added value of the modules developed is so significant that they should be shared with as many professionals as possible.

As far as the trainees are concerned, they will be asked to fill in a form with their personal information in order to register: They will be asked to give, for example, demographic information, educational background and professional experience, as well as how they were informed about the project modules, and participants will also be asked about their expectations. From gathering this information, the partners will be in the position to extract valuable information, not only about the participants and their profiles, but also to validate the dissemination activities carried out and enhance or strengthen them (if necessary) to increase the number of interested members of the target group. Once the form has been filled in, they will be automatically registered at the e-Learning platform and they will have access to all the available material.

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Any user who registers for the platform will need to acknowledge the code of conduct and the copyright restrictions which will apply for the SSNS e-Learning platform.

Through the platform the registered users will have the opportunity to attend online lectures based on the developed training modules and on online interactive sessions.

E- and self-assessment tests will be designed and developed to cater for the project's needs and ECVET requirements and learning objectives. The tool will model user knowledge and suggest learning pathways within the offered material in order to motivate users for self-paced learning and to help them identify the areas they need to focus on.

Self-assessment is a very powerful tool, which undeniably motivates the trainees to commit to their attainment of their learning objectives. The added value of self-assessment can be summarised below:

- ✓ It contributes to the clarification of what is implied by "good performance" in terms of goals, criteria and standards;
- ✓ It encourages commitment in terms of time and effort, particularly when it comes to challenging or difficult learning parts and aspects;
- ✓ It provides opportunities to trainees/ students to react immediately on the feedback received;
- ✓ It facilitates the progress of learning and the preparation for the formative assessment;
- ✓ It facilitates the involvement of the trainees/ students in the decision-making process concerning their learning journey;
- ✓ It promotes self-motivation and increases self-esteem.

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4.2 Forum

A forum will be created to facilitate the communication, exchange of opinions and creation of an international group of agri-food professionals, among the registered users of the e-Learning platform. The partners will create the following threads within the forum, to make sure that the information is already categorised appropriately per topic of interest and purpose:

- ✓ Support: This section will allow users to post any questions or issues that relate to their need for support, either on a technical issue or on a content-related one.
- ✓ International exchange: Under this thread, all interested agri-food professionals will have the opportunity to contact with their colleagues from the participating country in order to discuss issues related to the sector, explore ways of cooperation, share good practices, opinions, know-how, etc.

4.3 Instant messaging

The use of instant messaging aims to increase interactivity level within the SSNS platform. Through instant messaging the users will have the opportunity to communicate real time with each other and share information on the spot. Moreover, a provision for the creation of chat groups, where one person could get in contact with more than one trainee would be offered to the users. Through instant messaging, issues such as distance or place are overcome and people can get in contact regardless such parameters, so long as they are connected to the internet.

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4.4 Additional resources

The partners will use this section as a repository for important documents for the members of the target group. These documents will be categorised, based on their content, as well as the specific target group they address (e.g. agri-food professionals, students, stakeholders etc.).

5. Technical requirements

Bearing into consideration the aforementioned, the Moodle platform will be used for the e-Learning training modules.

Concerning the e-Learning platform for SSNS project, it will be used as an online documents repository. The most appropriate e-Learning platform to be used for the purposes of the project is considered Moodle, given that:

- ✓ It remains the most popular free learning management system internationally;
- ✓ It is open source software and, especially in combination with the point above, its development, support and bug resolution are undertaken at a much broader scale. Moreover, as programmers from across the world are involved in its development, it progressively meets the demands of a global educational community;
- ✓ It offers many tools for interactive communication among users, making it therefore easier for the partners to add many more options to foster communication among the professionals who will be participating and adjust them to the needs that might arise;
- ✓ Due to its popularity, it will facilitate the participants to focus on the content provided, instead of resolving technical issues.

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In the sections that follow, the basic specifications for setting up the current Moodle version are presented, based on the information provided on the Moodle website (www.moodle.org).

5.1 Hardware and software requirements

- ✓ Disk space: 160MB free (min) plus as much as needed to store materials. 5GB is recommended by the Moodle developers as the most appropriate average of storage requirement.
- ✓ Processor: 1GHz (min), 2GHz dual core recommended. These settings may vary according to the resources used.
- ✓ Backups: at least the same as above and preferably at a remote location, to make sure the site is backed up.
- ✓ Memory: 256MB (min), 1GB or more is strongly recommended. In general, Moodle can support 10 to 20 concurrent users for every 1GB of RAM; however, this may vary, depending on the specific hardware and software combination, as well as the intended number of participants of the course and the complexity of the courses which will become available for them.

As far as the server requirements are concerned, the following are recommended, under the condition that all software is kept updated:

- ✓ Moodle upgrade: Moodle 2.2 or later;
- ✓ Minimum PHP version: PHP 5.4.4 (always use latest PHP 5.4.x or 5.5.x on Windows - http://windows.php.net/download/)
- ✓ Ghostscript should be installed for pdf annotation.

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Moodle supports the following databases:

- ✓ PostgreSQL;
- ✓ MySQL;
- ✓ MariaDB;
- ✓ Microsoft SQL Server;
- ✓ Oracle Database.

Regarding browsers, the following are supported:

- ✓ Google Chrome
- ✓ Mozilla Firefox;
- ✓ Apple Safari;
- ✓ MS Internet Explorer

5.2 Moodle Architecture

Figure 1 presents the architecture of the Moodle system.

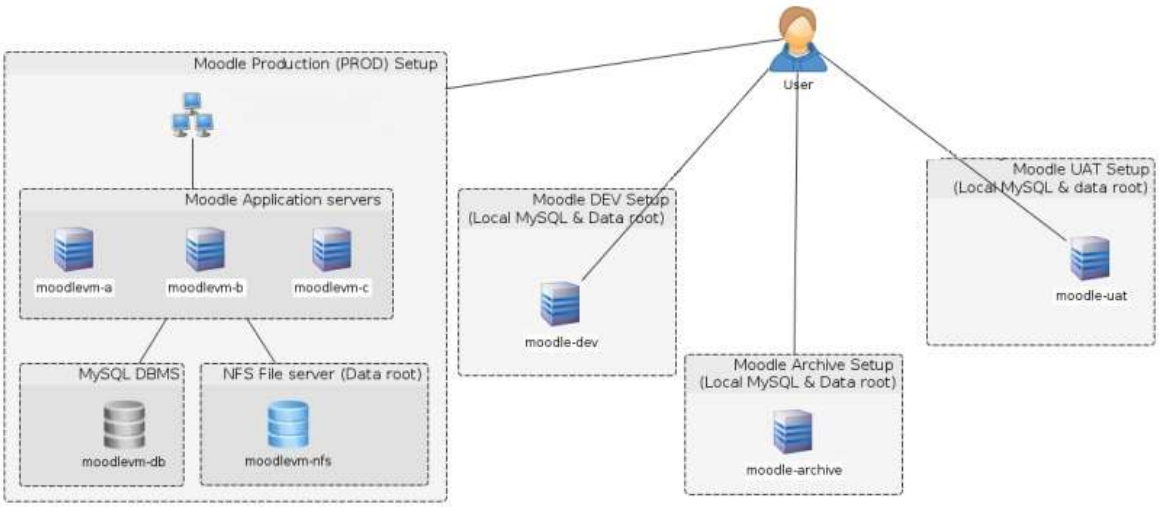

Figure 1: Architecture of the Moodle system

As it can be established from Figure 1, Moodle is divided in three partitions:

- ✓ The Application directory, which includes all the files of the Moodle software package.
- ✓ The Data directory includes all the files uploaded on the server from the trainers and the learners. Access to this data is allowed depending on the access rights of each user.
- ✓ The Database: Course material (content) created for courses offered via the Moodle (web pages, quizzes, workshops, lessons, etc.), user information, and user logs are stored in the Moodle database.

For the installation of Moodle, there is a very analytical description on the website: https://docs.moodle.org/27/en/Installing_Moodle.

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5.3 Roles and functions

The e-Learning platform is organized according to three types of users (roles): the Trainee who will undertake the e-Learning courses based on their profile and learning needs, the Trainer who provides the training and is responsible for monitoring the progress made and the learning objectives attained, and the Administrator who is responsible for the overall management and monitoring of the e-Learning courses, along with the country specific particularities and the corresponding needs of the users, for all users and all material of a course. Finally, the Administrator has, only, access to view and/or change all administrators' credentials (usernames and passwords). Moreover, the platform will also include the possibility for users to have access to the e-Learning courses as guests, with limited possibilities and access to content.

Within the e-Learning platform due to be developed under the SSNS project, the following roles are foreseen:

1. **Administrator, with the following options and rights:**

- ✓ View/edit administrators' info/ credentials;
- ✓ Administrator rights;
- ✓ Add/view/ edit/delete teachers/trainers' accounts/info/credentials;
- ✓ Add/view/ edit/delete students/trainees' accounts/info/credentials;
- ✓ Add/view/ edit/delete their own input to the platform;
- ✓ Add/view/ edit/delete/print any material which is uploaded;
- ✓ View/score/comment on any information uploaded from the students/trainees;
- ✓ Send a message to any teacher/trainer or student/trainee;
- ✓ Create and extract reports on progress made on the courses available;

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- ✓ Set up and backup of files;
- ✓ Maintenance and user help desk;
- ✓ User training services and development of related material;
- ✓ Announcement positing and messages that users should be aware of, such as technical issues, bugs, security warnings.

2. Trainer, who is in charge of the following:

- ✓ Be the main contact point between the teachers/trainers and the students/trainees with the consortium and the administrator for any country specific issues;
- ✓ Add/view/edit/delete teachers'/trainers' accounts/info/credentials of their own country;
- ✓ Add/view/edit/delete students'/trainees' accounts/info/credentials of their own country;
- ✓ Add/view/edit/delete information (news, updates, materials) belonging to the modules targeted for their own country;
- ✓ View the progress made for the modules of their own country;
- ✓ Communication of issues related to country specific information from users (teachers/trainers, students/trainees, guests) to the administrator;
- ✓ View/edit own info/credentials;
- ✓ Add/view/edit/delete his/her class students/trainees' accounts/info/credentials;
- ✓ View/print the material they have uploaded
- ✓ View/score/comment on his/her students/trainees' assignments/ replies to quizzes, etc.
- ✓ Draft and upload the course schedule;
- ✓ Post announcements;
- ✓ Assign work/quiz/report/case study or any other kind of homework to their students/trainees;
- ✓ Monitor the progress of their students/trainees;

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- ✓ Participate in the assessment of the course;
- ✓ Communicate with students/trainees.

3. Trainee, who can do the following:

- ✓ View/edit their own info/credentials;
- ✓ View their texts;
- ✓ View their quizzes/tests;
- ✓ Take the self-assessment test at the beginning of each module;
- ✓ Submit answers to his/her language quizzes:
- ✓ Add one of his/her answers to his/her portfolio;
- ✓ Send a message to their teacher/trainer;
- ✓ Access all the modules developed in the framework of the SSNS project;
- ✓ Search the list of modules available;
- ✓ Review the course schedule;
- ✓ Select the module/s of their interest;
- ✓ Monitor their performance;
- ✓ Download material for the course/s they have selected;
- ✓ Communicate with the teacher/trainer;
- ✓ Get updated information on upcoming events or activities, as well as security issues and other information related to the platform operation.

4. The platform guests, i.e. users who visit the platform, without having registered to a course may:

- ✓ Get information on upcoming events which are organised for public access;
- ✓ Get information on the existing courses, description, objectives set and added value;
- ✓ Get access to a specific part of the course, along with the related material, to attract attention and motivate them to enrol and attend the courses;
- ✓ Communicate with the teacher and/ or national coordinator to retrieve additional information.

The roles described above can be illustrated schematically as shown in Figure 2.

Figure 2: Roles foreseen within the SSNS project eLearning platform.

5.4 Platform features

Within the platform the following features will be available:

1. Authentication: manage who has the permission to handle authentication issues, manage accounts, as well as the permissions that platform guests have.
2. Accounts: browse accounts (activity, last access, uploaded files, etc.), monitor bulk user actions (it applies to groups of trainees/students), add a new user, upload users, upload pictures, user profile fields;
3. Permissions: the administrators can edit and manage the accounts of the administrators, country managers, trainers, trainers with limited access, trainees/students, guests, assign system roles, user policies;
4. Courses: this feature enables the administrators to add/edit courses, enrolments, course default settings, course request, backups;
5. Location: time and zone preferences can be selected;
6. Language: the language in which the platform will be available. Moodle provides additional plug-in language packs that allow full localisation to any language.
7. Modules: activities (assignments, forum, glossary, quizzes), blocks, filters. Moodle provides the possibility to create assignments, quizzes, etc. with a specified date of delivery, which may also be graded. The forum module will also be available, for course related discussions, which will be created and moderated by the teachers or the national coordinators. The Glossary module will be developed to facilitate the users with technically related issues and troubleshooting. In addition, as time progresses, the glossary will be enriched with more information, depending on the feedback received from the users.
8. Security: site policies, module security, http security, notifications, antivirus;
9. Appearance: themes, calendars, html editor, html settings, Moodle docs, My Moodle, course managers;

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10. Front page appearance: it allows the customisation of the colours, fonts and layout to suit the needs the users. Moodle possesses plug-in “themes” for that purpose.

11. Server settings: through this feature, the master/ administrator will have the possibility to check and modify the settings of the server which is hosting the course.

6. Conclusions

Following the analysis of the elements presented above, the partners will proceed with the development of contents of the platform, which will later be integrated in the platform. The participants-trainees will have access to the contents of all the modules developed for the SSNS project. The partners will assign one staff member as national moderator, who will bear the responsibility of checking and approving posts or comments that are intended to be uploaded on the forum, or any kind of user information intended for public use. Moreover, the national moderator will act as the main contact point for the participants of their own country.

The selection of the learning management system, along with the structure foreseen for the e-Learning courses addresses directly the needs of the agri-food professionals targeted by the SSNS project and providing an effective and prompt reference point to all registered users in relation to the Modules developed.

The platform will be developed in Outcome 2. At the same time, the partners will provide their support, in terms of content development and specifications analysis (should it be considered necessary), so that the platform is developed and runs continuously and without obstructions.

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