Upgrading the EU Data Protection Sector with new skills

Co-funded by the Erasmus+ Programme of the European Union

D2.15 On line web platform for "Data Protection Ready" Employees

WP2. Design or improvement of a joint qualification in VET

Project No: 597857-EEP-1-2018-1-EL-E 597857-EEP-1-2018-1-EL-EPPKA3-VET-JQ

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PROJECT INFORMATION

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PREPARED BY

• Authors	ReadLab,
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1. Introduction

The DataPRO platform MOOC report provides an overview of the online platform in terms of user requirements and systems specifications and features. The design and development of the platform along with online content are structured around 4 different sections.

Section 2 presents the adopted methodology focusing on instructional design aspects and the different phases of design and implementation. Section 3 provides the technical overview of the application: Architecture, open-source software, installation methods and the main system components. Section 4 lists the main features of the platform from a navigational point of view, the functionalities offered by the platform, the structure of the content and the different methods of delivery. Section 5 provides details on the features used for the online course management during the MOOC lifetime. The features are accessible by both LMS and CMS and they are targeting members of the DataPRO Course Team (DPCT).

2. Methodology – how the course was developed

The DataPRO online platform is based on the Open edX software[1] . The Open edX software is an open-source technology focusing on learning easier and faster. It was created by MIT and Harvard university and was quickly supported by universities such as UC Berkeley, Georgetown and Stanford and companies such as Google and Microsoft.

This software platform is designed to engage participants in an interactive and modular manner. It promotes active learning by using video snippets, interactive components, and game-like experiences.

Open edX powers edx.org MOOC portal with more than 6 million users, more than 500 available courses and around 50 involved international universities and business organizations and it is considered as a global success hosting blended and online courses all around the world.

The DataPRO MOOC was designed and implemented in an iterative manner. In order to understand and agree on the delivery of the final product several main factors had to be taken into consideration including:

- The main content development team consisted of 3 different groups (Cyprus, Greece, Germany) with complementary areas of expertise that needed to be reflected in the content: Legal issues, Technical issues and employment related data protection issues.
- The final product targeted multi-country audience, thus localization issues needed to be addressed. The DPCT formulated by individuals inside the consortium covering all the participated countries. In addition, the English version was released as a universal MOOC – anyone on a global level could enroll in the course and perform the learning activities.

[1] https://www.edx.org/

- The theoretical course “Personal Data Protection - Legal and technical dimensions” would be a completely 100% online learning experience. This affected the role of the instructor. The instructor should act more than a facilitator/mentor/moderator rather than a Professor lecturing on a campus class environment.
- All DataPRO online resources were released under the Creative Commons Attribution-NonCommercial meaning that a user must:
    - Give appropriate credit, provide a link to the license, and indicate if changes were made. The user may do so in any reasonable manner, but not in any way that suggests the licensor endorses the user or his use.
- From a technical point of view, the platform should be up and running 24/7 for about one year. During this wide uptime service duration, updates and maintenance tasks should also take place so the “maintenance tasks” should be implemented during low traffic time zones.

It was clear from the very beginning that the realization of such a complex process should be realized in different and concrete steps including small iterative cycles where it was feasible.

ReadLab, as coordinator of the development of the online platform, adopted the main points of the ADDIE instructional design model, towards splitting the tasks between the different actors and facilitate parallel work for time effectiveness. The key phases of the ADDIE model are depicted in the following picture.

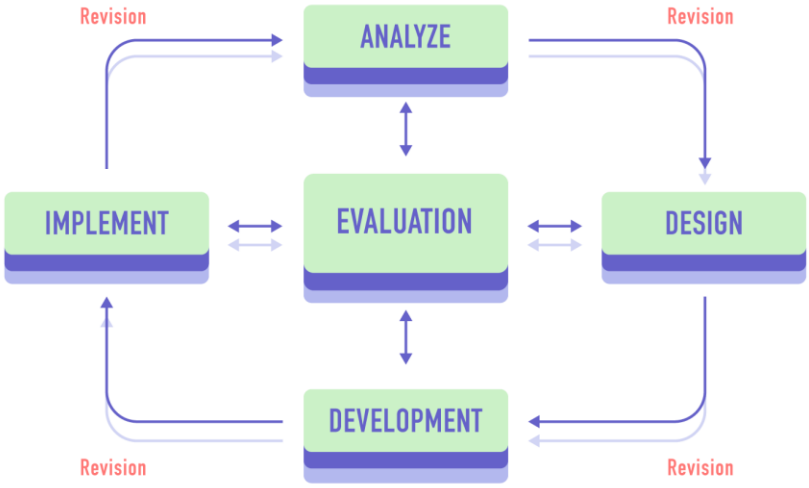


Figure 1 ADDIE instructional design model (Wikipedia)

Analysis:

During the analysis phase, the target audience and the overall objective of the course were set. The overall description of the DataPRO course was mainly defined in this step and its contents are described in more detailed in Section 4.

Design:

During the design phase and based on a set of learning objectives the following key concepts were defined:

Instructional strategy. The main outcome was to combine various resources and tools for delivering the content and be able at the same to allow flexibility on module level. The modules were structured around a combination of text/pdf, including external sources and followed by a self-assessment section. The instructional strategy was reflected in the Course Outline template where a clear learning sequence per lesson was defined. The raising awareness courses were targeting a broader audience and they were not leading to a certificate.

Horizontal aspects. All modules included a set of assignments at the end. All pdf files were downloadable.

User engagement. Engagement of learners strongly depends on the user experience of the online course. A user-friendly interface along with a clear learning sequence design ensured a smooth flow of topics and builds on learned concepts and ideas.).

Moreover, the partnership decided to create an award (DataPRO Certificate) for the successful learners (see section 5.3).

Acquire user feedback. To better analyse and evaluate the DataPRO learning experience, a set of questionnaires were designed to be integrated in the online platform (Pre-course and Post-course survey).

Development

During the development phase the platform (OpenEdx) was installed and configured according to the design specifications. The developed content followed the micro-learning approach and was split in several learning components (see section **Error! Reference source not found.**). The next step was to define the DPCT. Each partner provided at least on Instructor who onboarded on the online platform in order to review the content in the online version and be in charge of the delivery. The authoring tool was managed by ReadLab while all Instructors were able to review and provide feedback on the online content before its final release.

Define roll-out timeline. The final dates of each MOOC were depending on the progress of the two major tasks:

- Installation, user acceptance testing and configuration of the learning platform
- Development of the content and integration into the platform.

The first, stand-alone, task was finalized before the actual learning material was developed. ReadLab created a testing environment for deploying and testing the needed features of the application. Internal testing and manual QA tasks were performed in order to ensure stability and smooth operation of the application. The next step was to deploy the application to an

identical environment - “production environment” – where the learning material would be hosted.

The second task was implemented in short iteration cycles. The work was organised around the “first come – first served” concept. Each individual piece of learning material was created by the content developers (DPCT), uploaded in the platform and tested online. Upon reaching an 80% readiness of the online course (features, content, testing), the DPCT was able to provide accurate opening dates for each MOOC.

An important factor was to define the opening of enrolments some days before the starting date – this setting allowed prospective users to see the courses in the DataPRO course catalogue, view the description of each course and enrol. During the “enrolment window”, the project partners had the chance to disseminate and communicate the announcement of the DataPRO MOOC through the well-established DataPRO network mechanisms.

Implementation

The DataPRO MOOCs were released late in 2020. The first version of the content was developed in parallel in English language, thus this version was released earlier. The following table lists the released dates per MOOC. The DataPRO MOOCs ended on first of November, 2020.

Online Course	Released date	Opening of Enrolments
Specialisation Course	16 Jan, 2021	20 Dec, 2020
Raising Awareness Course	16 Jan, 2021	20 Dec, 2020
WBL component	1 Feb, 2021	1 Jan, 2021

Table 1 Release dates of the DataPRO online courses

3. Technical overview

The DataPRO learning platform is a web-based implementation for creating, delivering, and analyzing online courses. The platform has been installed on a dedicated server supported by ReadLab.

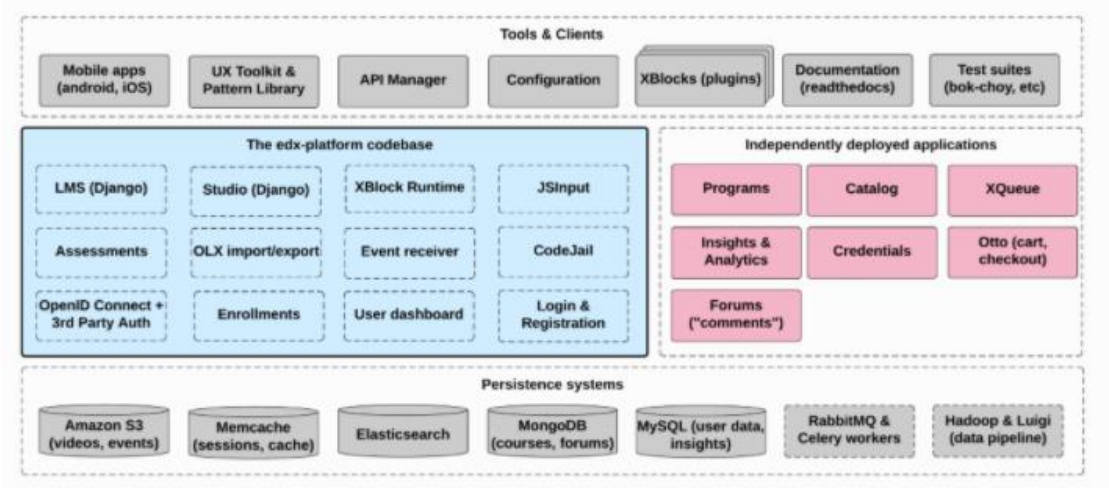


Figure 2 Open Edx reference Architecture

The platform is supported by a collection of autonomous web services called independently deployed applications (IDAs) in order to address scaling and expandability needs. The vast majority of the back end or server-side services are implemented in python, the front-end is based on the Django web application framework, while the browser-side code is written primarily in Javascript supported by SaaS[2], Backbone.js[3] and Bourbon[4] frameworks. At the centerpiece there are the two key components: the DataPRO Learning Management System (LMS) and the DataPRO Content Management System (CMS). The CMS or Studio, is the authoring tool where the DPCT creates, updates and manages the course. Several heavy tasks are performed by separate background workers rather than in the web applications themselves. These tasks are queued and distributed using Celery[5] and RabbitMQ[6].

Examples of such tasks, that were performed in the DataPRO platform are:

- Sending bulk emails to enrolled users
- Generating distribution reports related to learner progress
- Producing end-of-course certificates

The DataPRO learning platform supports the latest versions of the most common browsers. For best performance Chrome and Firefox were recommended. The application also supports the latest versions of Microsoft Edge, Microsoft Internet Explorer and Opera.

3.1 LMS

The LMS is the most visible part of the platform where learners are interacting during the online course lifetime. In addition to the learner's view, the LMS provides an instructor

[2] https://sass-lang.com/

[3] https://backbonejs.org/

[4] https://www.bourbon.io/

[5] http://www.celeryproject.org/

[6] https://www.rabbitmq.com/

dashboard where users with Admin or Staff roles can access with enhanced functionalities. As depicted in Figure 2, LMS uses several data storages of different technologies. Information relevant to the course organization and structure are stored in MongoDB while user data is stored in MySQL. All DataPRO video lectures were served through a dedicated YouTube channel.

The structure of the courses consists of units called XBlocks. The Xblock specification is a key component architecture designed to facilitate the creation of new online education experiences. In educational applications, Xblocks are employed to represent custom features like individual problems, web-formatted text and videos, interactive simulations and so on. The DataPRO Xblock suite currently implemented is described in detail in section **Error! Reference source not found.** considering the two basic designing criteria:

- All Xblocks are independent of other Xblocks.
- All Xblocks should be able to work together with other Xblocks and be combined in flexible ways.

3.2 CMS

Content Management System or Studio is the course authoring environment. The DataPRO course team uses this application to create and update any course material as well as to manage course schedule and grading policy. Studio utilizes documented and open XML standards (OLX) to import/export created courses and provides access to rich 3rd party tools or additional building blocks (YouTube, Google shared documents, webinar tools, etc). The data created here is stored to the same Mongo database that the LMS uses.

3.3 Installation

The DataPRO online platform was developed by ReadLab in June 2020 and it was publicly accessed through the link: https://mooc.datapro-project.eu.

Installation and technologies used. The main application was installed in a dedicated server hosted by ReadLab and it was based on the open edX Ironwood release [7]. The tutor distribution was employed to simplify the process of deployment and facilitating future updates and debugging.[8]. In general, the Tutor distribution separates the configuration logic from the deployment platforms, allows for running application processes in cleanly separated docker containers and provides user-friendly commands for common administrative tasks and monitoring.

Maintenance tasks, debugging and updates were performed during low traffic time zones i.e. weekdays after 23.00 CET.

[7]https://edx.readthedocs.io/projects/edx-installing-configuring-and-running/en/latest/platform_releases/ironwood.html

[8] https://docs.tutor.overhang.io

4. The DataPRO training environment

4.1. Getting started

The DataPRO platform can be accessed through the link: https://mooc.datapro-project.eu. Users have direct access to the available course descriptions and can retrieve information related to information management regarding the platform and the DataPRO project.

ReadLab has designed and deployed a custom theme following the visual identity of the DataPRO project ensuring responsiveness. The DataPRO platform design is perfectly inline with the DataPRO website taking into consideration the main visual elements such as project logo, colors, fonts, sizes, buttons, labels, etc.

The landing page of the DataPRO MOOC is depicted in the following picture. The platform provides an initial set information to the user without registering in the platform including:

- A Welcome message
- A course information page (detailed description is following)
- Footer links describing the Terms of Use, the Privacy Policy and the Honor Code governing the use of the platform
- Footer links to external content such the project website and the partners of the DataPRO consortium
- The EU emblem with the accompanying text « The European Commission support for the production of this publication does not constitute an endorsement of the contents which reflects the views only of the authors, and the Commission cannot be held responsible for any use which may be made of the information contained therein» being in line with the Erasmus+ visual identity and logos[9].
- Search functionality for finding courses provided by the DataPRO platform. The search functionality has been enhanced with language filtering since it the online course was delivered in 5 different languages i.e. EN, GR and DE.

[9] https://eacea.ec.europa.eu/about-eacea/visual-identity-and-logos-eacea/erasmus-visual-identity-and-logos_en

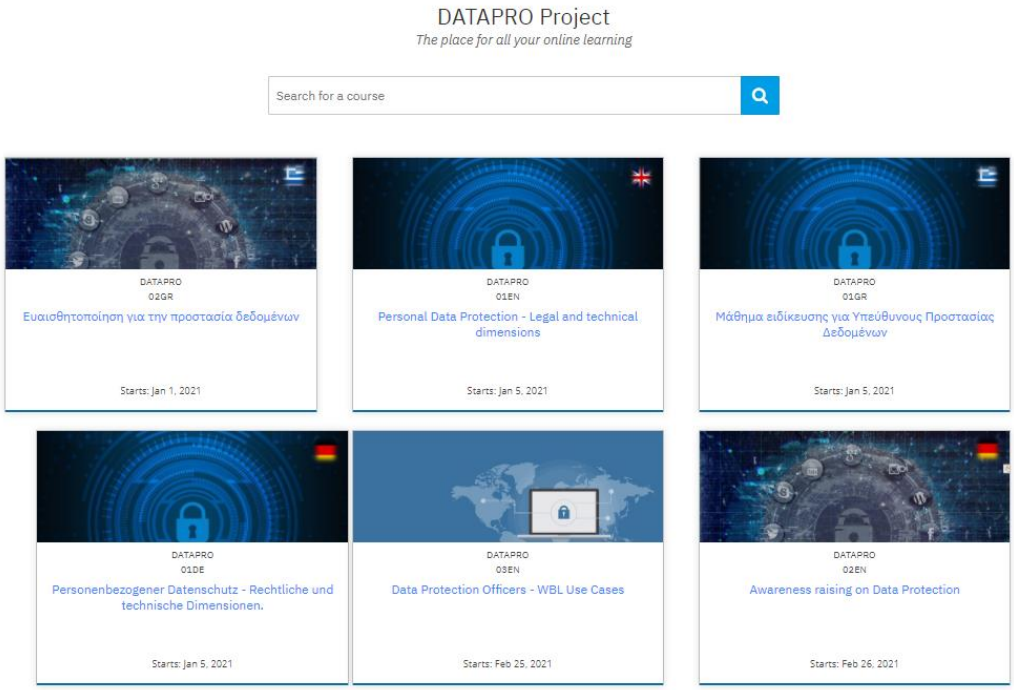


Figure 3 DataPRO platform - course catalogue

Course description page

The course description page includes the following information:

- A general description of the online course including pre-requisite information and target groups
- Main learning objectives and outcomes
- An overview of the course syllabus and the structure of the modules
- General information about the course including estimated effort, delivery language, course type, i.e. self-paced vs instructor paced, prerequisites and social media sharing.

The course description page is handled (edit, update) through the DataPRO CMS

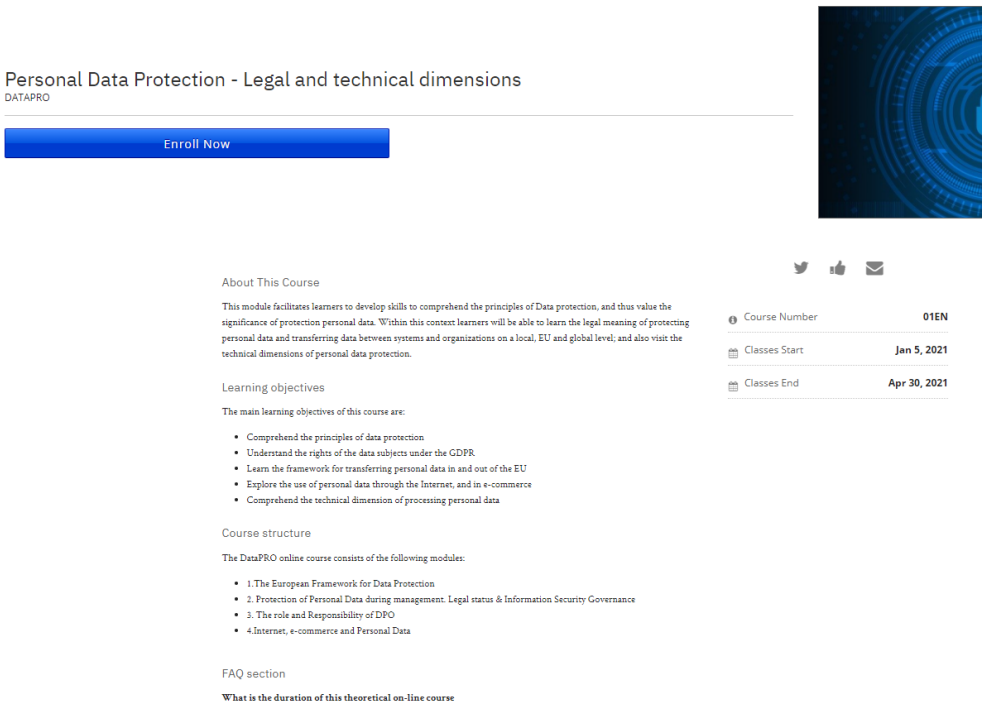
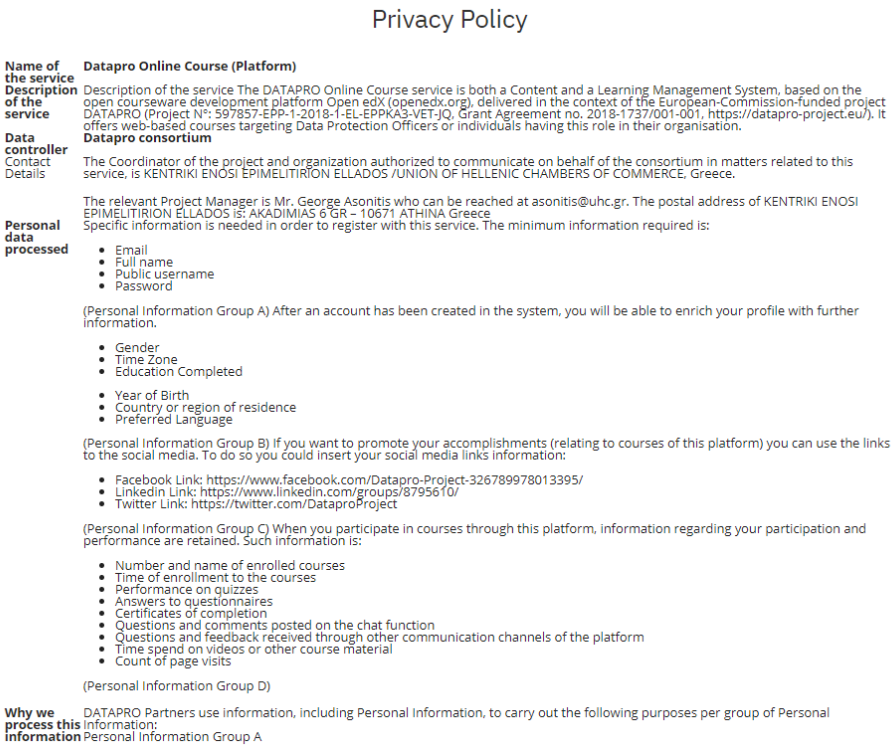


Figure 4 Course description web page

Useful Information

Apart from the course catalogue, the landing page contained links related to information regarding the project results and partners.

- **Project**. This is an external link to the project website
- **Partners**. This is an external link to DataPRO partners website.
- **Contact**. A list of emails related to course management and technical support and a reference to the online manual of the platform.
- **Privacy Policy.** This page informs the user about the description of the service and provides detailed information related to personal data storage and processing. More specifically, it lists the data stored during the registration process and the data processed during the interaction with the platform. The latter is used for assessing user participation, engagement, and performance.
- **Terms of Use.** Users are informed of the Terms of Service that govern the DataPRO learning platform and are owned and operated by the members of the DataPRO consortium. It consists, among others, of information related to platform accessibility, security rules, License agreements, use of personal information, etc.
- **Honor Code**. Users are informed about user posting rules and their responsibilities regarding the proper use of the DataPRO platform. A list of strictly prohibited items is included at the end of the document.



Privacy Policy

Name of the service **Datapro Online Course (Platform)**

Description of the service Description of the service The DATAPRO Online Course service is both a Content and a Learning Management System, based on the open courseware development platform Open edX (openedx.org), delivered in the context of the European-Commission-funded project DATAPRO (Project N°: 597857-EPP-1-2018-1-EL-EPPKA3-VET-JQ, Grant Agreement no. 2018-1737/001-001, https://datapro-project.eu/). It offers web-based courses targeting Data Protection Officers or individuals having this role in their organisation.

Data controller **Datapro consortium**

Contact Details The Coordinator of the project and organization authorized to communicate on behalf of the consortium in matters related to this service, is KENTRIKI ENOSI EPIMELITIRION ELLADOS /UNION OF HELLENIC CHAMBERS OF COMMERCE, Greece.

The relevant Project Manager is Mr. George Asonitis who can be reached at asonitis@uhc.gr. The postal address of KENTRIKI ENOSI EPIMELITIRION ELLADOS is: AKADIMIAS 6 GR – 10671 ATHINA Greece

Personal data processed Specific information is needed in order to register with this service. The minimum information required is:

- Email
- Full name
- Public username
- Password

(Personal Information Group A) After an account has been created in the system, you will be able to enrich your profile with further information.

- Gender
- Time Zone
- Education Completed

- Year of Birth
- Country or region of residence
- Preferred Language

(Personal Information Group B) If you want to promote your accomplishments (relating to courses of this platform) you can use the links to the social media. To do so you could insert your social media links information:

- Facebook Link: https://www.facebook.com/Datapro-Project-326789978013395/
- Linkedin Link: https://www.linkedin.com/groups/8795610/
- Twitter Link: https://twitter.com/DataproProject

(Personal Information Group C) When you participate in courses through this platform, information regarding your participation and performance are retained. Such information is:

- Number and name of enrolled courses
- Time of enrollment to the courses
- Performance on quizzes
- Answers to questionnaires
- Certificates of completion
- Questions and comments posted on the chat function
- Questions and feedback received through other communication channels of the platform
- Time spend on videos or other course material
- Count of page visits

(Personal Information Group D)

Why we process this information DATAPRO Partners use information, including Personal Information, to carry out the following purposes per group of Personal Information:
Personal Information Group A

Figure 5 DataPRO platform privacy policy

Finally, the footer includes the EU emblem as well as the social media links of projects as they are depicted in the following picture.

Registration

To get started the user needs to create or register an account to the DataPRO platform. Upon creating a DataPRO account, the user has then the possibility to access/enroll in all DataPRO available courses.

The registration functionality is a two-steps process. The user creates the account by filling in Email, Full Name, Public Username and Password. The second step is to activate his/her account through an activation link sent to his/her registration email. The registration process is performed only once. Having the account activated, the user can login/log out or change the password.

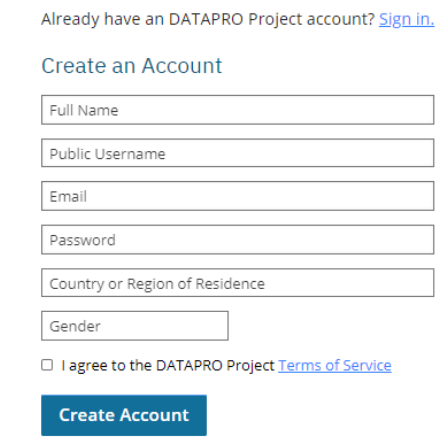


Figure 6 Registration form

The DataPRO online course was open to all users around the world. The users upon registration had the chance to enroll and attend the DataPRO online course. However, there were a few cases where the instructors had to register learners upon request. This functionality was supported by the Manual Enrolment feature where the DPCT manually enrolled the learners. In the case of unregistered learners, they were asked to first register in the DataPRO platform through an automatic email. This functionality was mainly used for inviting specific users-experts to pilot the DataPRO platform.

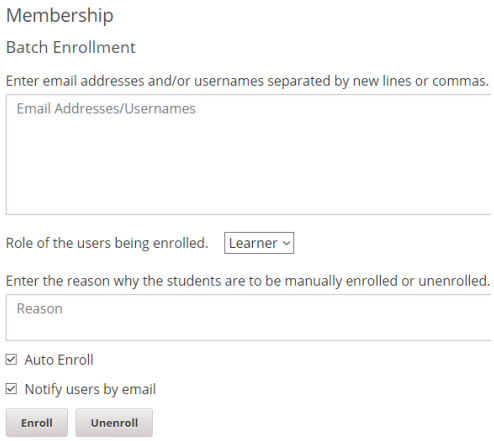


Figure 7 Manual enrolment

Account features

Each registered user had access to specific course contents, profile and account settings.

Dashboard. The dashboard provides information of the status courses where the user is enrolled. It includes, Start/End date, email settings and acquired certificates. The user has also access to the content of archived courses with limited functionalities e.g. no certifications are generated after course completion.

Account settings. Includes registration information and additional optional fields such as Education Completed, Gender, Year of Birth, and preferred language. Finally, through this feature the user can link or unlink his/her social media accounts to the DataPRO platform.

Profile Page. The profile page allows to share information with the DataPRO community by defining a full profile. The learners' profile can be displayed through the discussion page upon selection of its username.

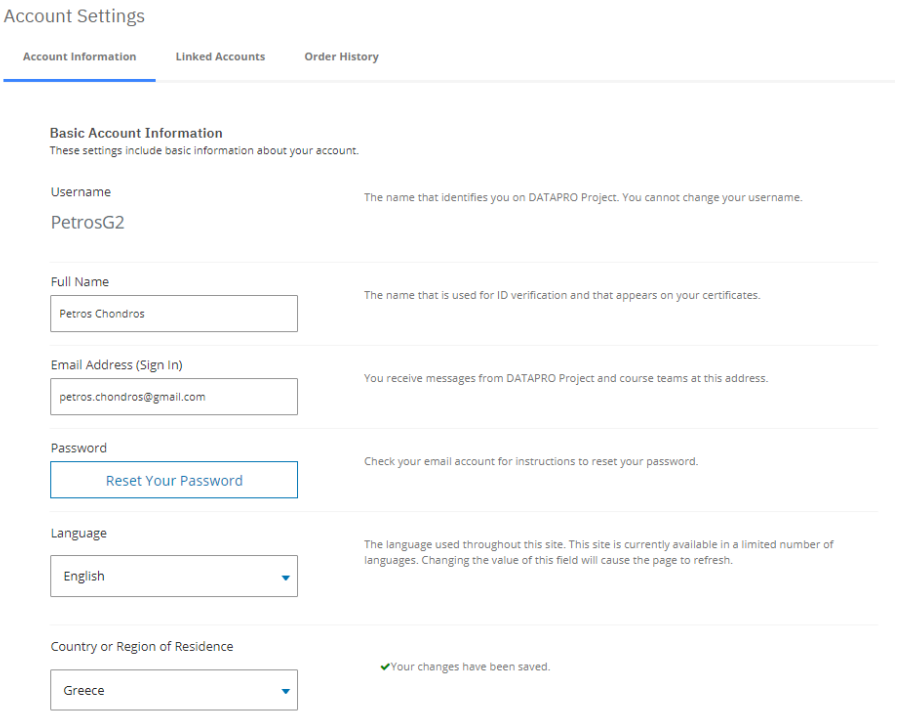


Figure 8 Account page

4.2. Course content and navigation

Each registered user has access to course contents upon enrollment and given that the course is released. All DataPRO courses are open to registered users (Educators, students, professionals, self-learners).

The following section describes the structure of the DataPRO courses along with the underlying instructional design methodology and the navigation al capabilities of the platform.

The microlearning approach

The DataPRO user interface offers a brief course outline that help learners see the full scope of the course contents and facilitates the learners to return to the last content area they were viewing. In the following picture the outline of the "Personal Data Protection - Legal and technical dimensions" course is presented. The course is structured in a modular manner and organized in sections (Weeks or Modules) and subsections (lessons). This is inline with the relatively new microlearning concept. With microlearning, the content is broken down into

bite-sized pieces of learning material. This instructional approach is very efficient when incorporating various learning styles and the basic design elements adopted during the DataPRO online courses were:

- Granularity, where the learning strategy focused on narrow concepts or topics taking into consideration the respective learning objectives. This allows learners to learn detailed concepts in the shortest amount of time.
- Briefness. Even though there is no strict limitation regarding the duration of each teaching unit, the components of the learning process were short.
- Diversity. The DataPRO learning material has the form of pdf presentation, online text, quiz and external links as supported material.

Modularity – navigational form

As a consequence of the micro-learning approach, the DataPRO training material was built up of many bite-sized components including different learning components. This was a major challenge as the content developers needed to switch from the traditional campus classes which are structured around hour-long lectures.

The modular approach is more suitable for online settings and provides several benefits. Learners can more quickly find compactly organized reference information about a specific topic without having to scroll through a bunch of texts or scrub through an hour-long video to find the one piece of information they were looking for.

Learning modules are organized so that learning material (e.g. reading material/PowerPoint presentations) alternate with exercises. This structure facilitates any updates or re-organizations needed during the course lifetime since it minimizes the impact on adjacent material.

In this context, the architecture of the DataPRO courses, included the following general building blocks:

- The course outline is the container for all the course content. The outline contains one or more sections.
- Course sections (Modules/Weeks) are at the top level of the course and typically represent a time period. A section contains one or more subsections.
- Course subsections (Lessons) are parts of a section, and usually represent a topic or other organizing principle. Subsections are sometimes called “lessons” or “learning sequences”. A subsection contains one or more units.
- Course units are lessons in a subsection that students view as single pages. A unit contains one or more components.
- Course components are objects within units that contain the actual course content:, reading material, problems/quizzes and discussion forums.

The DataPRO course was organized in two levels of hierarchy. It consisted of 6 sections (modules) and several subsections (lessons) per module.

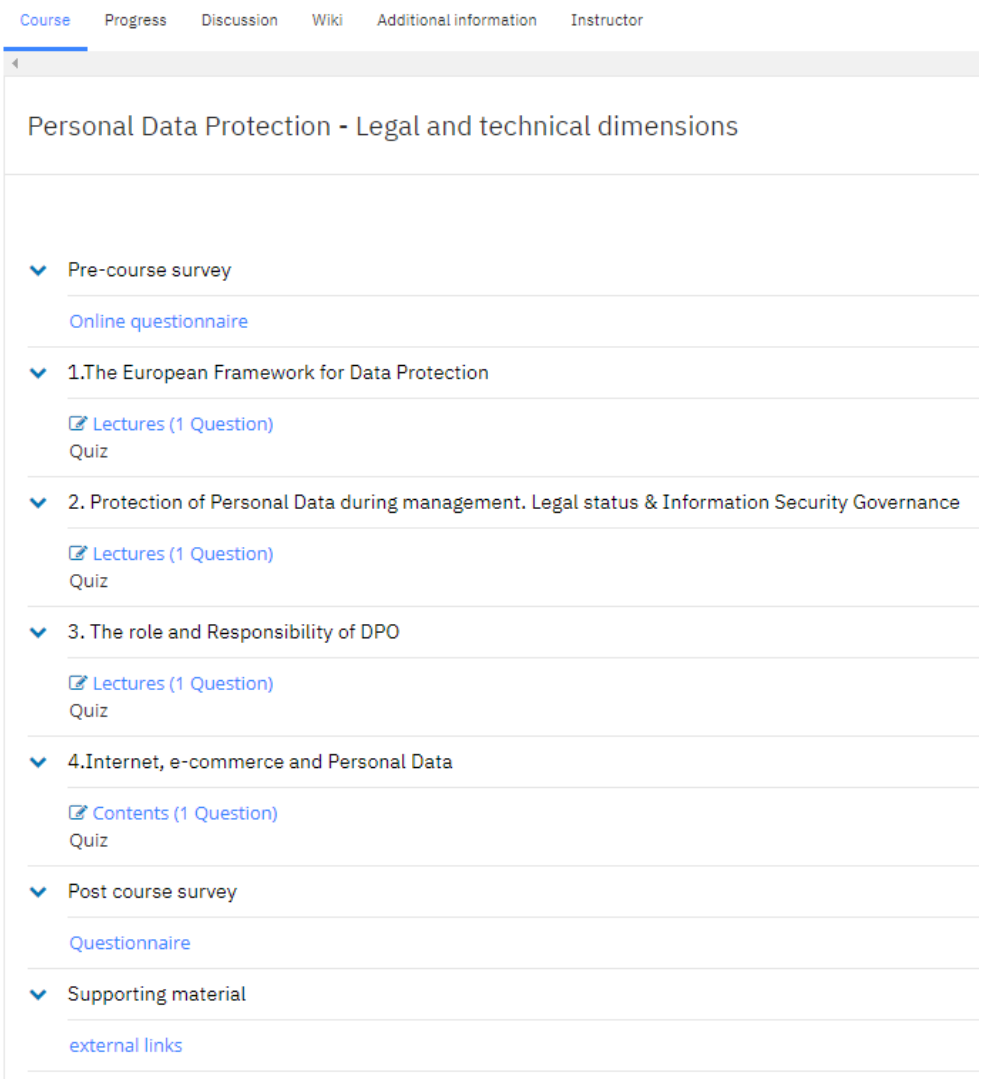


Figure 9 DataPRO Course high-lelvel structure

This structured approach helped to quickly switch between modules and lessons. Navigation between lessons during the learning process is intuitive and the learners could always see where they stand and how many lessons are left for the current lesson/subsection. In addition, it was easy to understand whether there were some assessments to complete.

The structure of the content and the navigational form are depicted in the next figure. Each lesson was structured as a series of units forming the “learning sequence”. The learning sequence comprises a set of different learning experiences combining free text, pdfs, online videos lectures, different types of assessments, discussion spaces, etc. From a User eXperience (UX) perspective, the learner is constantly aware of his web path through an horizontal navigation toolbar as highlighted in the picture below. In addition, he is informed that he has already visited the respective unit through an automated green check box. The

linear navigation form is clean, effective, engaging and results in a great learning experience since the learner is focused on a specific learning objective and not distracted.

In this example, the learning material is built up in 7 different units i.e., single web pages. The user is aware from the very beginning that the content is delivered in 2 different methods: online text/reading, and an assessment at the end of the learning sequence (Green box).

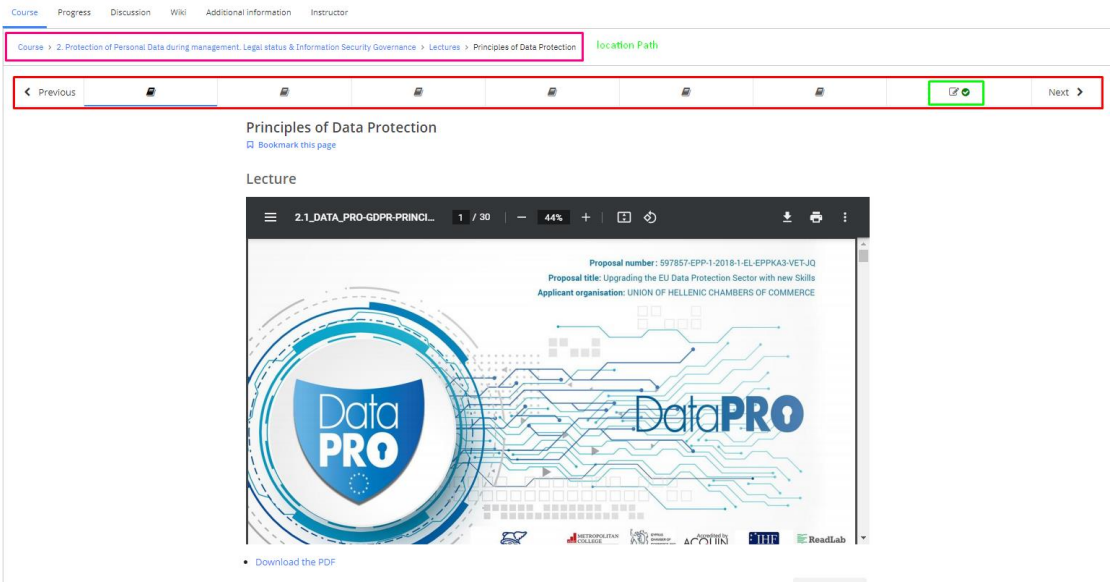


Figure 10 Learning sequence organisation example

Embedded Custom web page

In the case of the specialization course, it was decided to create a custom web page in order to provide practical information regarding how the course is expected to run and what are the possible next steps. The course acted as a "pitch" for participants who successfully completed the courses and expressed their interest towards the WBL component. Thus, the contact details of the project partners in charge of the Work-Based learning were provided to the students in a single web page along with other practical information.

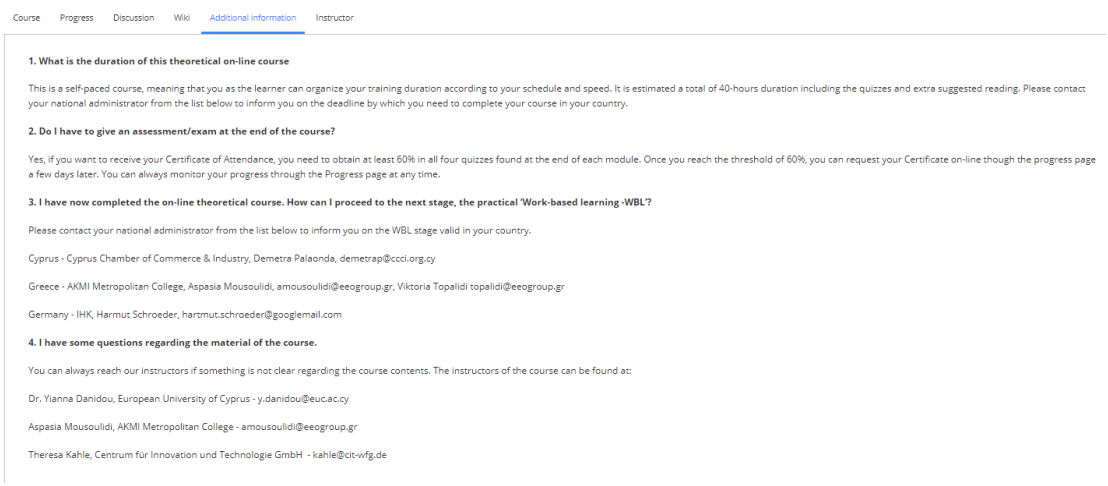


Figure 11 Custom web page - Additional information related to the DataPRO course

4.3. Learning components in DataPRO MOOC

The following methods of delivering the learning material (Xblocks) were employed.

PDF component

PDF component allows to integrate PDFs files into the MOOC environment. Each pdf is hosted in the MOOC platform and it is presented inside a single unit. The file can be directly scrolled, printed or downloaded by selecting the appropriate control buttons.

Figure 12 PDF component

Problem component

The assessment of the learner's progress was realized through a set of problem components in the form of multiple choice questions. At the end of each lesson (learning sequence) the user had the chance perform this kind of activity and acquire instant feedback. In addition, after the final submission the learner had the opportunity to see the correct answers.

The score obtained by the Quizzes contributed to 60% of the total grade (see section Grading Policy for more details).

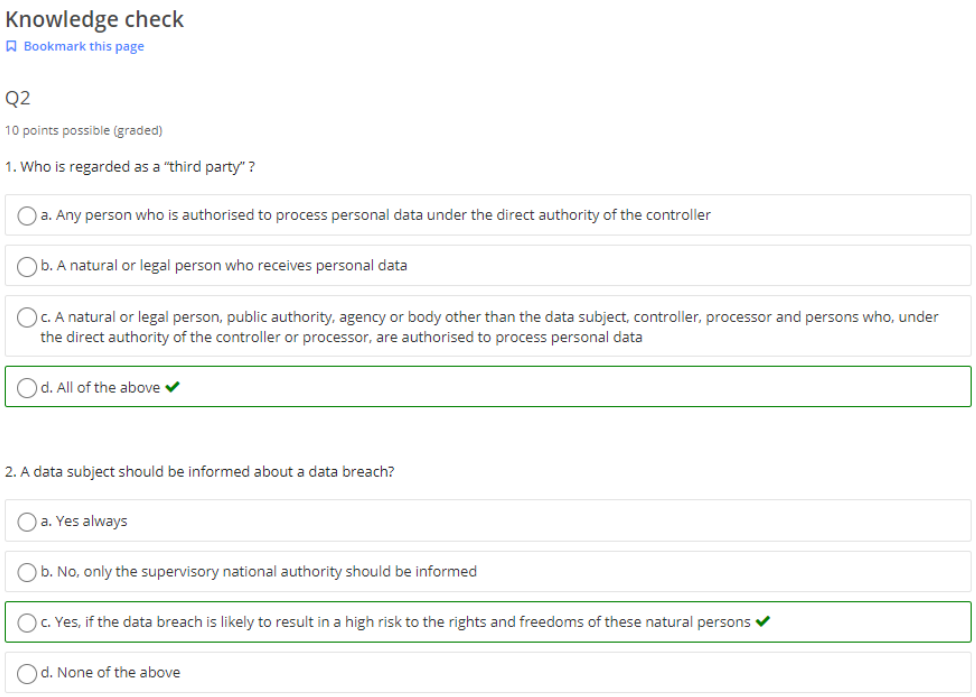


Figure 13 Problem component

Open Response Assessment Component

The Open Response Assessment component was employed to support the final exams procedure. Each learner in order to successfully finish the DataPRO MOOC should prepare an essay on 3 given scenarios. The participants were asked to analyze and provide their response in a set of specific questions.

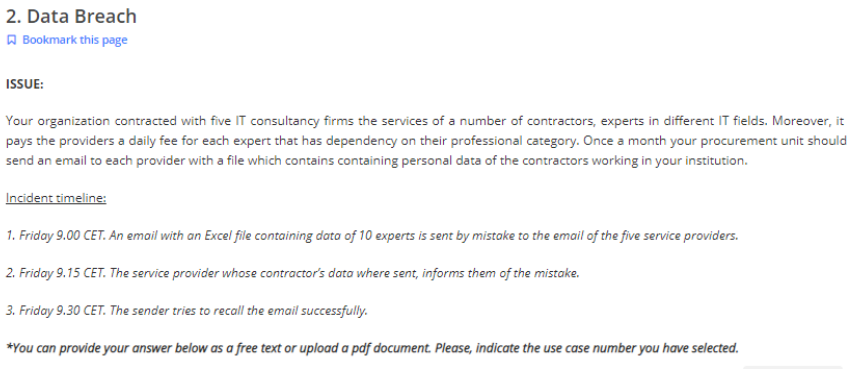


Figure 14 Example - Open response Assessment and prompt

The following pictures highlights the different steps:

- Submit own response
- Be assessed by the instructor (Staff Grade)

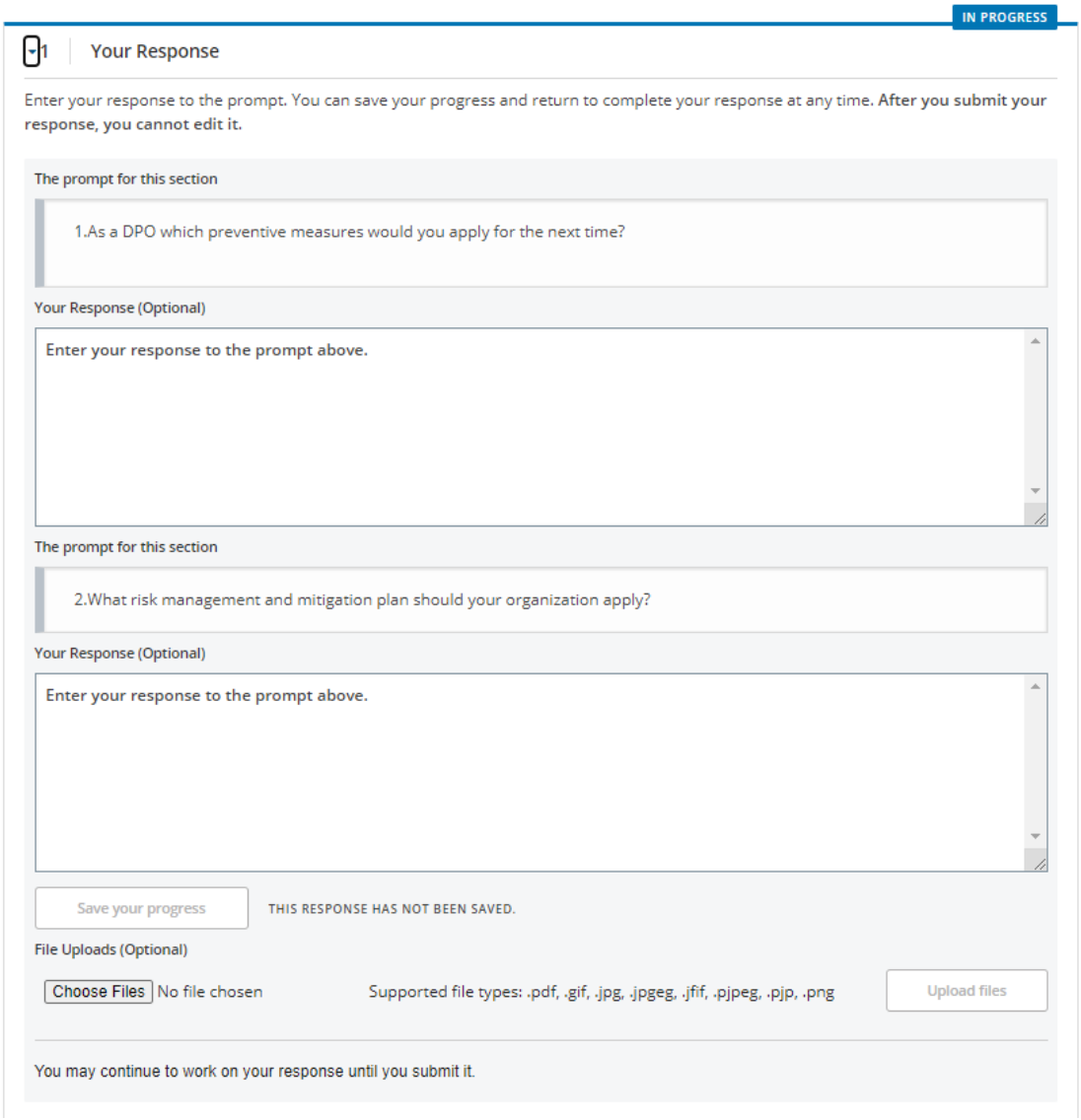


Figure 15 ORA component

4.4. Progress Page

A dedicated web page was configured to display the progress of each learner. A column-based graph was automatically updated based on the results of the problems. The participant had the opportunity to check real-time his progress per specific problem and understand the level of progress achieved. The "passing" threshold was set to 60% of the total grade. Scoring above this threshold, the participant was able to claim his online certificate of course completion

through the progress page. A total of 4 quizzes are displayed in the progress page highlighting the individual and total scores achieved.

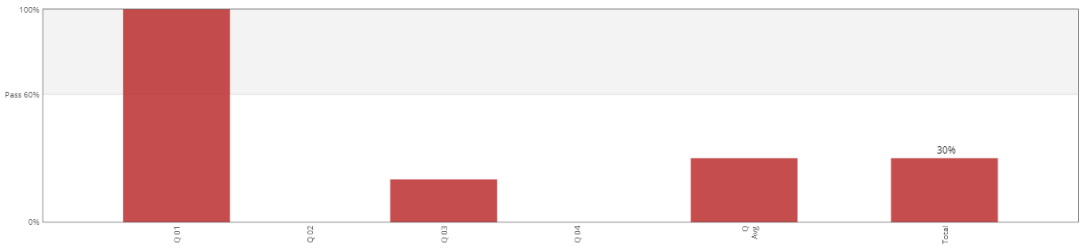


Figure 16 Learner Progress dashboard

5. DataPRO course management

This section describes the built-in tools and features used throughout the DataPRO MOOC duration. The features were available to all Course Team members and the main operations were performed both from the LMS and CMs applications.

5.1. Instructor dashboard

Course management was mainly performed through the Instructor Dashboard in the LMS. The following features were configured in order to be accessible be the DataPRO Course Team.

Review Course information. This dashboard provided information regarding the current enrollments, the total number of sections, the grade cut-offs, Course start and end dates, etc. This feature was used by all instructors since they were able to have a quick overview on the basic figures of the MOOC.

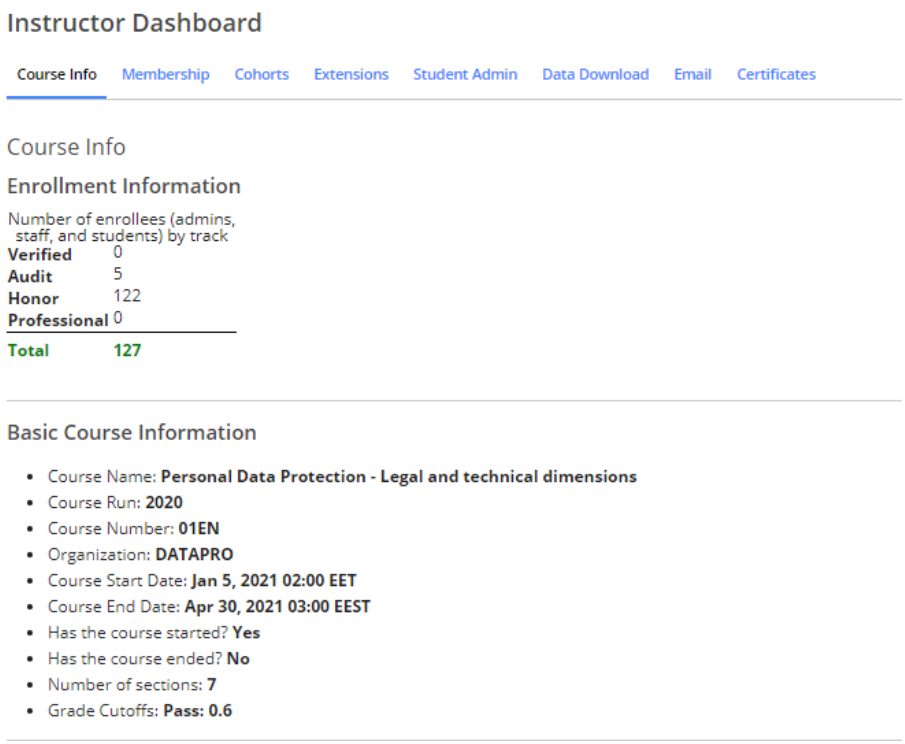


Figure 17 Course Overview dashboard

Manual enrolments. An important number of course participants were experts or professionals in the data protection sector. This target group was mainly enrolled through in-platform invitations exploiting the network of consortium members. Each course instructor had the chance to auto-enrol learners, through the Membership page. All prospect participants were notified by a course invitation email automatically generated by the platform.

Grade reports. For each of the course, the instructor was able to generate grade reports. The reports are in csv format and downloadable and scores are presented by assignment for unique learner ID. To prevent the accidental distribution of learner data, the reports were downloadable by selecting the internal links generated by the platform as depicted in the picture below. These links were expiring within 5 minutes - copying and re-using them after this short period of time was not an option. In addition, report files were configured to be deleted by the database 90 days after generation.

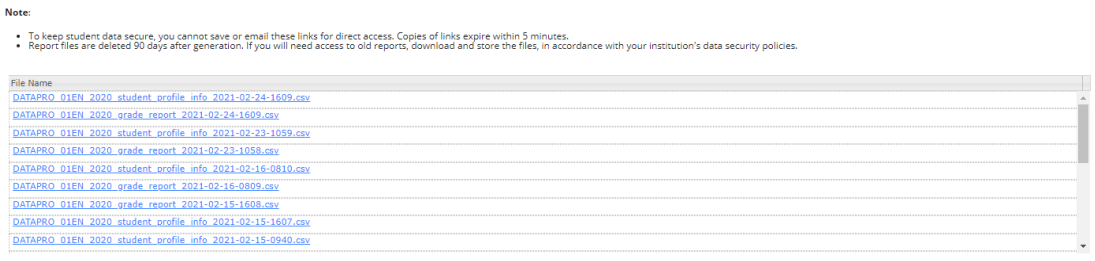


Figure 18 Generated Graded reports

5.2. Grading Policy

The grading policy was agreed and configured after discussions with MOOC content developers. The main rules governing the grade configuration are:

- One main category of Assignment was created consisting of 4 quizzes covering all lesson (Category Quiz).
- The overall grade was a Pass/Fail configuration. The level as set to 60% of the total grade.
- Assignment is mandatory, i.e. no participant should be able to claim his certificate without going through the Quizzes.
- No number of droppable assignments were defined. In other words, all assignments were contributed to the final grade and the learner was not given the opportunity to "drop" lower scoring problems.
- No restriction on dates or grace periods to deadlines were defined, given that the MOOC was configured as a self-paced learning experience.

These requirements were treated by the DataPRO platform as depicted in the following figure.

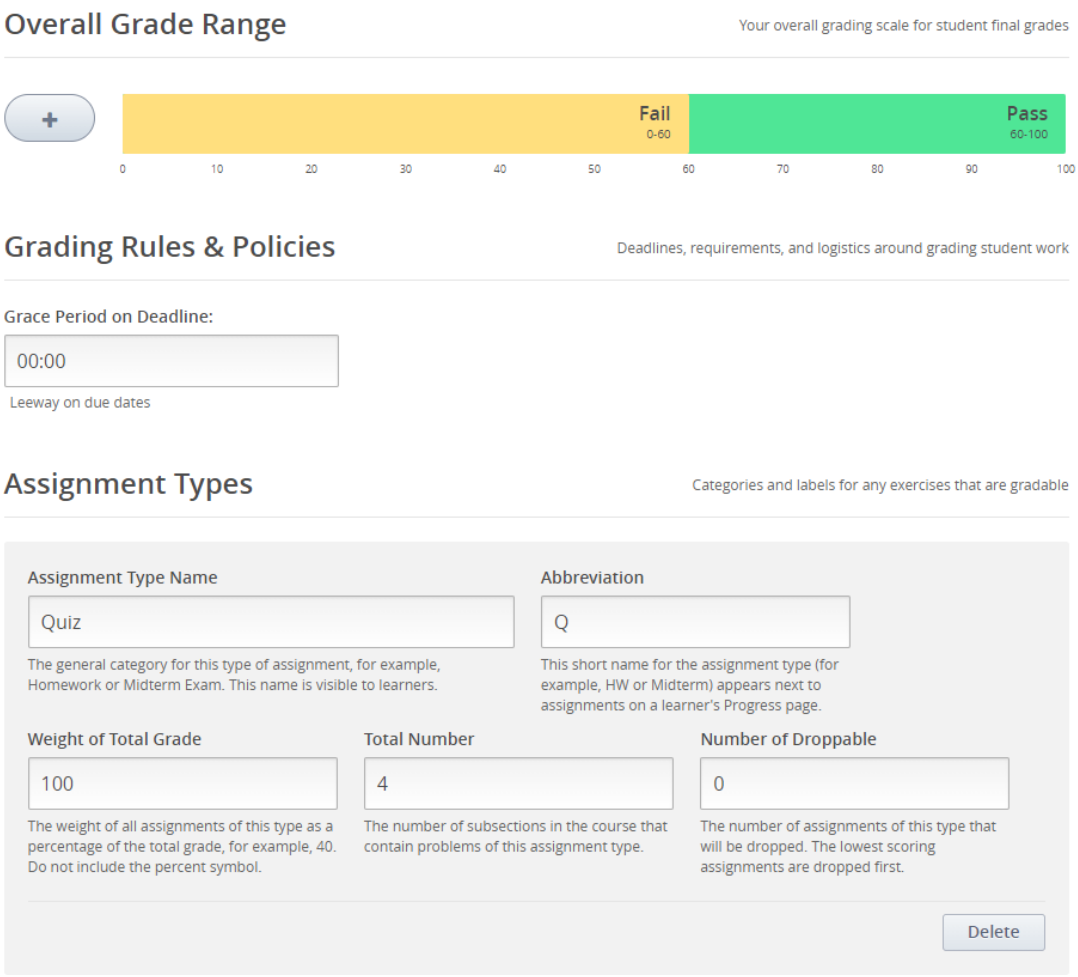


Figure 19 MOOC grading policy

5.3. Progress of Participants

Apart from the reporting functionalities, ReadLab had configured a visual gradebook accessible by the instructors. Each instructor was 2 clicks away from reviewing the total score per participant. The picture below provides an overview of the scores per quiz and per participant.

Gradebook

Search students	Q 01	Q 02	Q 03	Q 04	Q Avg
ac	0	60	80	100	60
Aglaros	0	0	0	0	0
AKALLIS	90	100	0	0	48
Akis	0	0	0	0	0
ALEXANDRIS	0	0	0	0	0
alexpapadakis	0	0	0	0	0
AmvrosiosProdromou	90	0	0	0	22
Andreas	0	0	0	0	0
Andreas-Karayiannis	90	70	100	100	90
Andreas_Aggeli	0	0	0	0	0
Andreas_io	0	0	0	0	0
Andria	100	100	100	100	100
Andria_Andreou	0	0	0	0	0
andrikkos	0	0	0	0	0
andX	0	0	0	0	0
Angelcara777	0	70	80	100	62

Figure 20 Online Gradebook

5.4. On-line Certificate

The MOOC platform was configured to allow learners to claim their online certificate upon successful completion of the course and not waiting the end of it. The view certificate functionality automatically appears in the progress page on each learner as depicted in the following figure.

Each certificate was accompanied with a unique ID that was generated from the system. This was a must-have functionality in order to secure uniqueness and verification procedures if needed by an official accreditation authority.

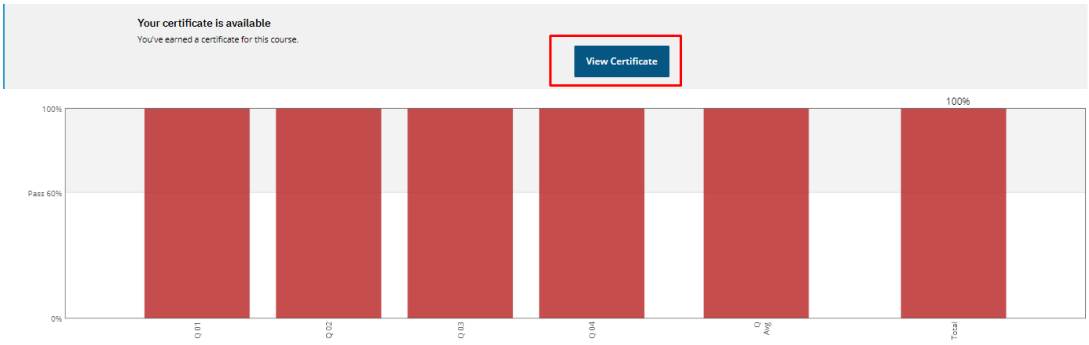


Figure 21 Claim online certificate

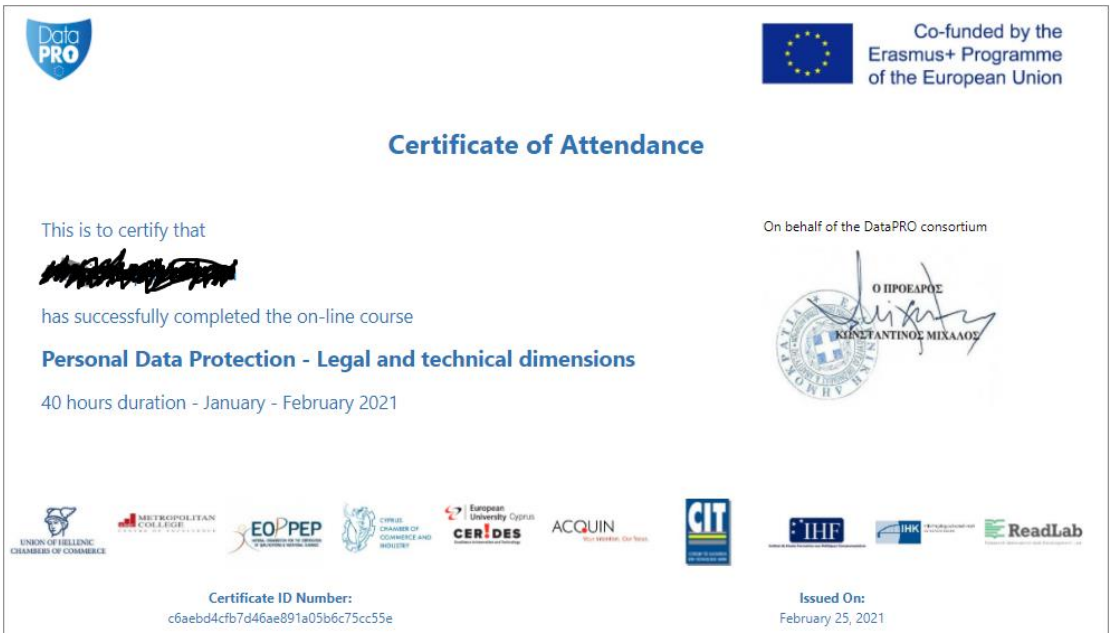


Figure 22 DataPRO Certificate design

5.5. Course Team

The DataPRO Course Team consisted of Instructors supported the online delivery of the course" Trauma-informed leaving care support empowering public authorities and professionals". The multidisciplinary nature of the subject was covered by employing consortium experts addressing legal and psychological areas as well as scientific/active research methodologies. At least one instructor was assigned to each of the three language versions of the MOOC (English, Greek, German).

Apart from scientific expertise, the Course Team was able to address technical support and answer queries regarding the functionality of the platform. An important requirement was to ensure uptime service.

The DPCT was responsible for:

- Supporting, mentoring and moderating issues coming from learners regarding the course content

- Communicating with the audience and keep them informed about important dates or deviations from the initial planned activities.
- Providing technical support and help learners tackle any difficulties posed by the online application.

6. Conclusions

Through the DataPRO platform, instructors were able to create engaging learning sequences which promoted active participation as learners had the possibility to alternate between learning concepts and solving simple exercises to check their understanding and knowledge. As already mentioned, the course content was presented through learning sequences: a set of interwoven videos, reading material, exercises and material with automatic assessments and instant feedback, tailored discussion spaces and collaborative tools.

Participants could move at their own pace following a self-regulating learning process while they received instant feedback upon completion of different types of assessments providing superior pedagogy.

Concluding, the DataPRO MOOCs were designed and developed adopting the following general best practices and features offered by the platform:

- Create a clear grading policy by setting a passing score and defining assignment types. All assignments add up to 100%.
- Design and enable course certificates – corrected text, uploaded signatures and activation of certification are the main steps.
- Set important course dates including course and enrollments start and end dates. It is important to have these dates set once since constant updates on the course dates, especially the starting dates, are discouraging the learners.
- Build diverse learning sequences. Empirical studies and research show that a diverse content experience drives learner engagement[10]. Each DataPRO MOOC included readings in text and pdf formats, discussion units and problems.
- Manage unit depth. Each DataPRO unit should not contain many components. Breaking up course contents into manageable pieces promotes learner engagement. Thus, no more than 3 components per unit were used in the DataPRO courses.
- Always provide additional and practical information regarding course logistics, technical support, post course possibilities, etc.
- Assign Staff and Admin roles. For each DataPRO course at least on Staff member was assigned.

[10] https://www.sciencedirect.com/science/article/pii/S0360131519301423