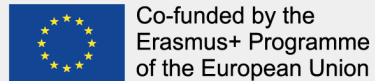


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# Ulysseus Digital Platform

April 2022



[www.ulysseus.eu](http://www.ulysseus.eu)

The Ulysseus Action has received funding from the European Union's Erasmus + Programme under the grant agreement No 101004050. The views and opinions expressed in this communication are the sole responsibility of the authors and do not necessarily reflect the views of the European Commission

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## Executive summary

Highlighting the essentials



## Executive summary

**Ulysseus European Universities action and efficiency depends on its capacity to collaborate and form one connected team “across borders” despite the geographical distance that separates us,** having a realistic and concrete approach when defining our processes and services. **The Ulysseus Digital Platform has been delivered to support our distributed team,** to interconnect our research networks, to consolidate the teaching material of our institutions, to allow our students and local communities to learn from each other and grow.

In this context Ulysseus Digital Unit has delivered Ulysseus Digital Platform as a consistent set of services and a critical pillar supporting Ulysseus activities and most of our Work Packages that this document will describe more in details:

- **Ulysseus main website and satellites websites**
- **Ulysseus learning platform**
- **Ulysseus survey platform**
- **Ulysseus Collaboration platform**
- **Ulysseus video platform**
- **Ulysseus online courses video-conference platform**

To deliver those services with a short time to market, a high sovereignty and interoperability, we massively use **open-source software**. This is why we decided as well to share most of our deployment recipes as open-source.

In the future, we will build a **common authentication platform, ensure the scalability of our services** thanks to a private cloud architecture and pursue our effort toward a sovereign and **interoperable digital platform**.

02

# Ulysseus Digital Platform



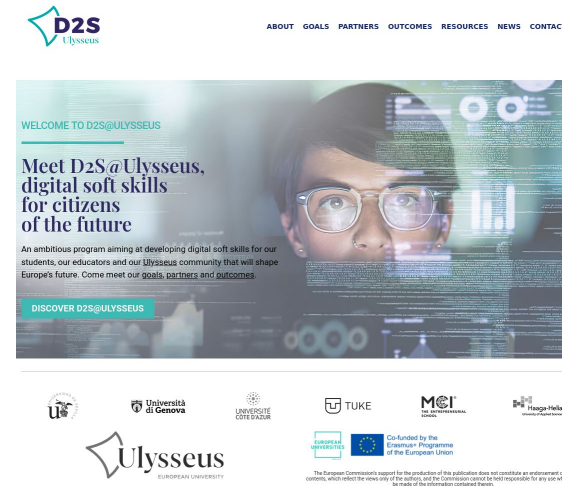
## Ulysseus and satellite projects websites

One of the first deliverables that was realized as part of Ulysseus European University is the Ulysseus website based on open-source software [Wordpress](#) and available at <https://ulyseus.eu>.

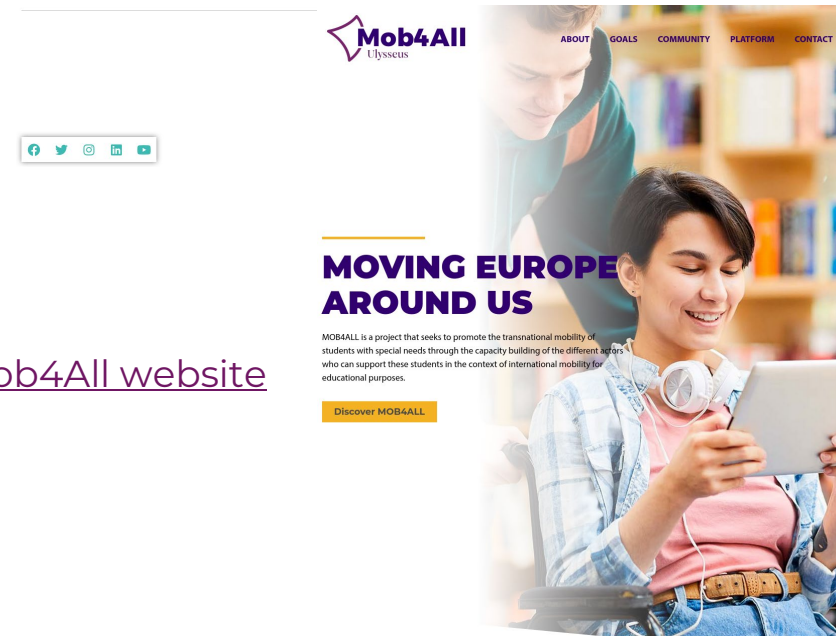
Even if the content of the website is part of another deliverable D.7.2, the technical hosting and technical maintenance of this website is done by the digital unit.

On top of that, Ulysseus website is the main entry point for most of the services offered by Ulysseus, for instance Ulysseus academic offer, Ulysseus surveys, etc.

On top of the main website (D.7.2), the digital unit has delivered websites for two Ulysseus satellite projects: D2S website hosted on <https://d2s.ulyseus.eu> and Mob4All website hosted on <https://mob4all.ulyseus.eu>



D2S website



Mob4All website



## Learning Platform

Ulysseus European University required a full featured platform for delivering courses to all its audiences: students, academic and non-academic staffs as well as wider audiences from our extended communities in an inclusive way.

To support this need, the Digital Unit has delivered a learning platform based on the open-source software [Moodle](https://moodle.org/) that is available at <https://ulysseus.eu/learn>.

On top of Moodle software, the digital unit has integrated the capacity to deliver live courses using video-conference and interactive videos using a self-hosted video platform. Both those platforms are addressed later in this document.

The screenshot shows the Ulysseus learning platform interface for the 'Ulysseus Spanish A1' course. The left sidebar contains a navigation menu with the following items: SPA-A1, Participants, Badges, Competencies, Grades, and 'Welcome to SPANISH 1 online class' (highlighted). Below this are several course modules and assignments, including 'MODULE 1: Hola, ¿qué tal? 1 ECTS', '1a Saludos y presentaciones', '1b Países y nacionalidades', '1c En la cafetería', 'Module 1: ASSIGNMENTS', 'MODULE 2: En el hotel 1 ECTS', '2a Vamos en taxi', '2b En la recepción del hotel', '2c Preguntas', 'MODULE 2 FINAL WRITTEN TEST', 'MODULE 3: En el hotel', '3a ¿Cómo vamos al centro de congresos?', '3b Presentaciones', '3c El programa de la semana', 'Module 3: ASSIGNMENTS', and 'FINAL EXAM SPANISH 1'. The main content area features a purple header with the course title and a 'Turn editing on' button. Below the header, there is a 'Welcome to SPANISH 1 online class' message and a 'MODULE 1: Hola, ¿qué tal? 1 ECTS' section. A 'Welcome to Ulysseus Spanish A1 online course' banner with an image of oranges and a 'Mark as done' button is also visible. The 'Getting Started' section includes instructions for students to read the course description carefully and make the most of their learning experience by studying often in short periods of time. The learning process for this online course is as follows:

- 1. listen, read and interpret in English the dialogue** in each section and read the useful expressions related to the topic, titled *Expresiones útiles* in the course material. Read the dialogue and expressions aloud several times.
- 2. Study the vocabulary related to the dialogue using the Quizlet exercises** embedded in the course material. In order to learn pronunciation, it is important that you also listen to the words and repeat them. It is then worth reading the dialogue again to make sure that you have understood the content correctly. Note! You should log in to Quizlet (free of charge) to see all the content of the exercises!
- 3. Familiarize yourself with the grammar of the dialogue** and practice carefully e.g. the conjugations of new verbs.

## Ulysseus learning platform

Ulysseus Surveys

- Créer un questionnaire
  - Questionnaires
  - Aide
  - Configuration
  - Questionnaire(s) activé(s)
  - Mise à jour de sécurité disponible
  - 2
- ls\_admin



Ceci est l'interface d'administration de LimeSurvey. Commencez la création de votre questionnaire à partir d'ici.

Dernier questionnaire consulté : Enquête sur les compétences transversales des employeurs (Id...

|   |   |  |
|---|---|--|
| <p>Créer un questionnaire</p> <p>Créer un nouveau questionnaire</p> | <p>Liste des questionnaires</p> <p>Liste des questionnaires disponibles</p> | <p>Paramètres généraux</p> <p>Éditer les paramètres généraux</p> |
| <p>Mise à jour de confort</p> <p>Soyez en sécurité et à jour</p>    | <p>LimeStore</p> <p>Boutique d'extensions LimeSurvey</p>                    | <p>Thèmes</p> <p>Thèmes</p>                                      |



LimeSurvey Community Edition  
Version 5.0.4+210614

## Ulysseus survey platform

## Survey Platform

While defining the Ulysseus Digital Platform, we soon had to measure the quantitative interests of our community in terms of digital services. At the same time, the collection of sensitive data such as gender and ethnicity made it impossible to use tools such as Microsoft Forms. This is why the digital unit delivered a survey service based on open-source software [LimeSurvey](https://ulysseus.eu/surveys) available at <https://ulysseus.eu/surveys>

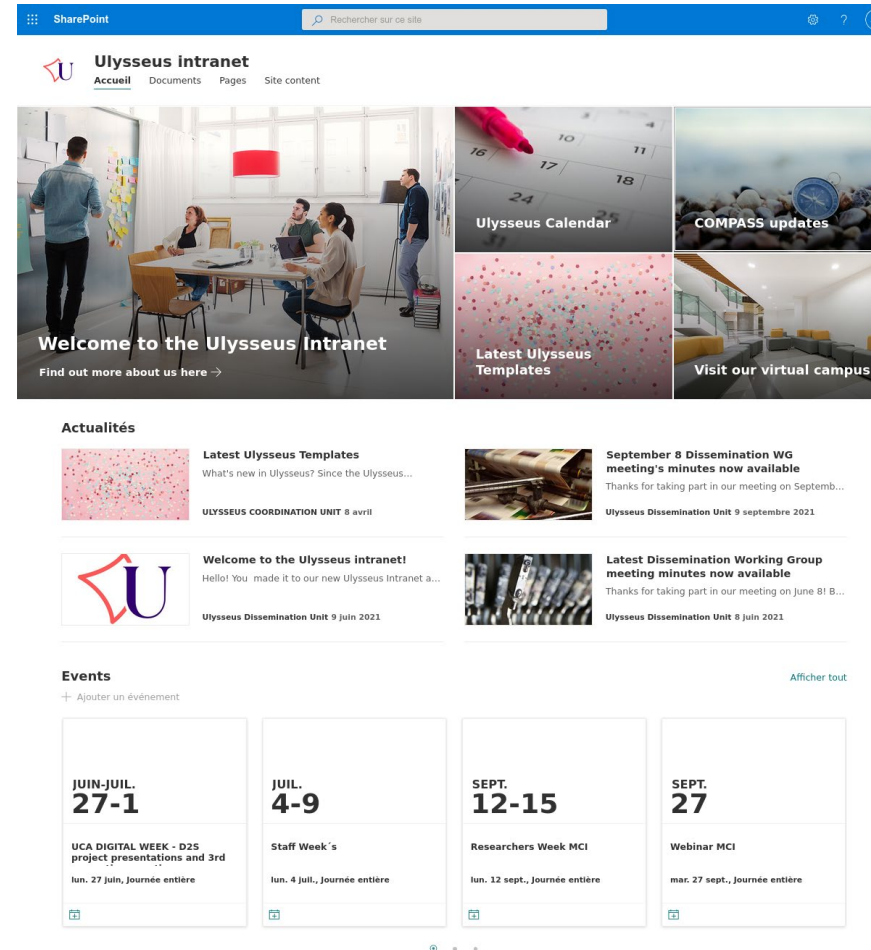
It features localization, complex branching mechanisms and ready-made customizable reports on results.

## Collaboration platform

Soon after the beginning of the European University program, we felt the urgent need for an integrated collaboration tool. After having assessed the option of open-source platform, we decided to go for simplicity, proven reliability and a fast time to market and implemented the Software As A Service (SAAS) solution [Office365](#) from Microsoft.

To allow access to teams, we implemented and configured Active Directory. Authentication is delegated to each institution and uses their native Shibboleth solutions. The first use of Office365 was the team construction using Teams and the document sharing using Drive.

Soon we built as well as our intranet using Sharepoint to disseminate official deliverables, reports and EU commission documents, our shared graphical resources and official Ulysseus template documents.



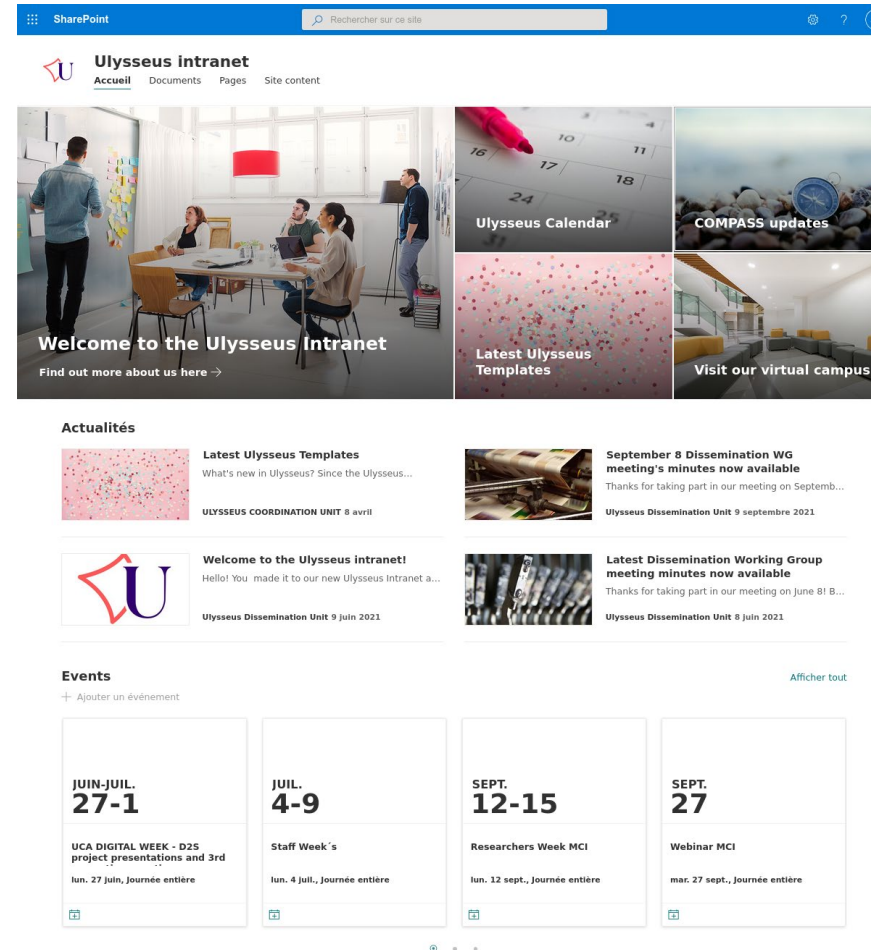
[Ulysseus intranet](#)

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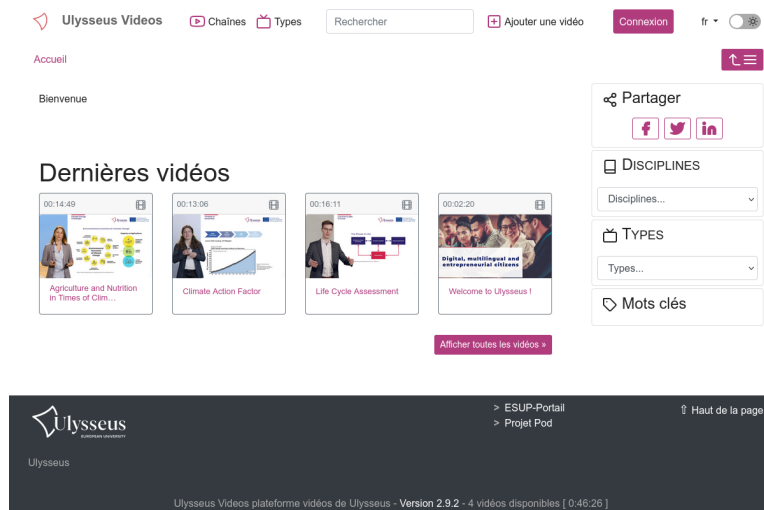


## [Ulysseus intranet](#)

## Video Platform

One of the important learnings from the pandemic was the efficiency of short videos for online learning. To serve this purpose, the Digital Unit has deployed a video hosting platform based on the open-source software (maintained by the French Higher Education association ESUP) **Esup-Pod** that is available on <https://videos.ulysses.eu>.

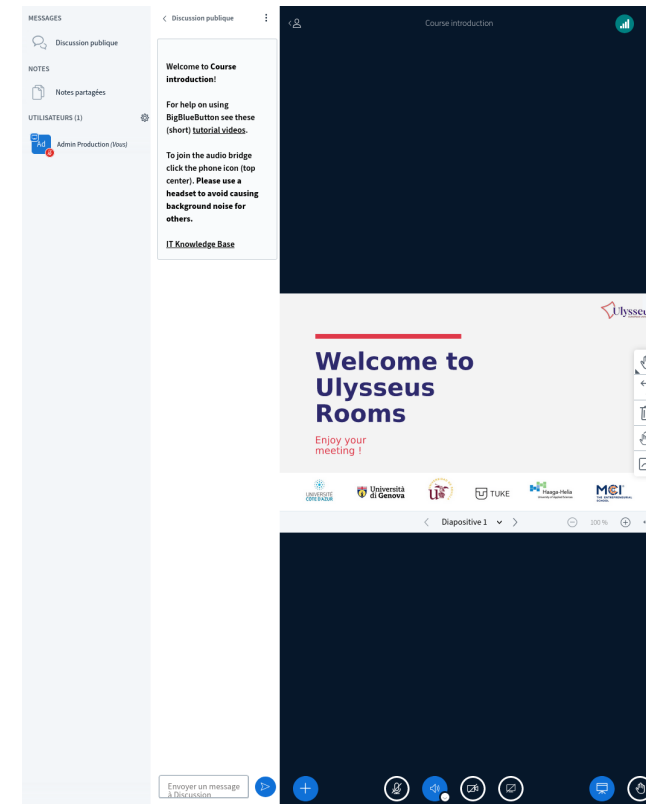
It delivers videos in multiple qualities and provide ready-made links to be integrated into Moodle via the **H5P content** plugin.



Ulysseus video platform

## Online courses video-conference platform

To allow teachers to deliver online courses, we deployed a video conferencing solution based on the open-source software **BigBlueButton**. It features virtual backgrounds to preserve privacy and break-out rooms to animate work within small groups.



Ulysseus online courses video-conference platform

## Open Source

Our commitment to using open-source software is very high. Not only it gives us a lot of freedom to operate our solutions but it helps us at guaranteeing the respect of RGPD rules on our own and keeps our digital sovereignty at its maximum.

This is why, at the same time we benefited a lot from the efforts of the open-source community, we decided to give as well to the community.

As a consequence, we have released as open-source software all the deployment recipes that we used to operate our platform using Docker and Docker composition. These recipes can be found at <https://github.com/ulyssseus-eu>.



# 03

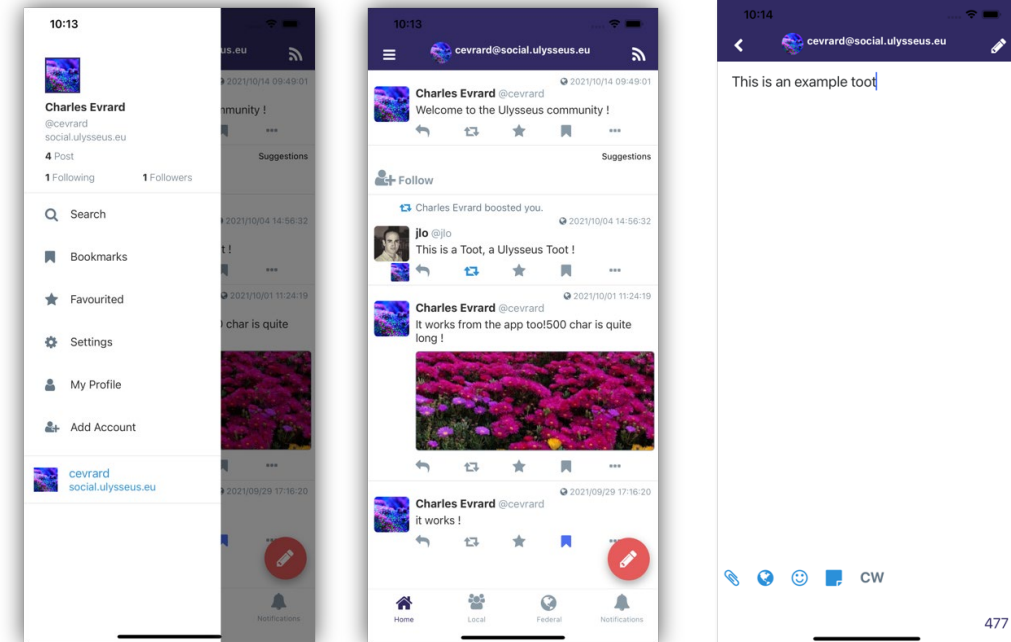
## Connection with other deliverables



## D.3.12. Match4Cooperation application report

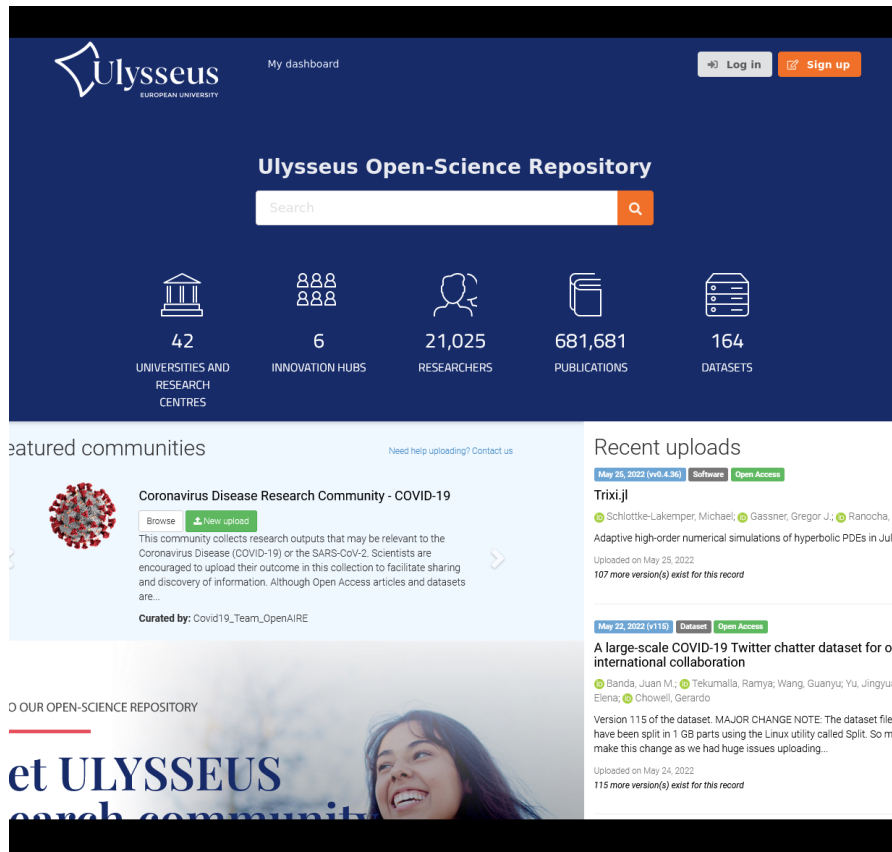
As part of D.3.12, we have delivered Match4Cooperation application. It is a research social network based on open-source software Mastodon available for all Ulysseus community at <https://social.ulyssseus.eu>. On top of Mastodon, we have delivered a mobile application based on open-source software Ikuradon available on iOS and Android. This application features group creation based on EU research calls and an interest-based researcher matching.

To develop this matching algorithm, we have built several building bricks that help us at collecting automatically information on our research community such as Name, email and research keywords.



[Ulysseus Match4Cooperation application](#)





Mockup of Ulysseus open-science repository

## D.7.10 Ulysseus joint repository

As part of D.7.10, we will deliver an Open-Science joint repository for both Ulysseus publications and Ulysseus research data. We have already agreed with our Open-Science workgroup to base our platform upon open-source software [InvenioRDM](#). In the course of this development, we want to homogenize and clean the data about our research community so as to benefit from a multi-capable search engine to be used by our extended community and integrated into our other deliverables such as Match4Cooperation.

# 04

## Planned evolutions



## ● Central authentication and profile management

As you may have noticed, we have a growing number of services that operate more or less independently. As much as we can, we tried to provide a seamless authentication with existing institutions' solutions. Still a lot of them are using an independent authentication and profile management solution. This is why we are planning to release a centralized authentication mechanism that support both SAML and OpenID SSO protocols and that will delegate authentication to user's institution.

This authentication solution will then be used as a trusted authentication mean for all services delivered by each institution, starting with the partner courses we wish to integrate to the Ulysseus academic offer.



## ● Student lifecycle management

Ulysseus Digital Platform will also play a key role for management of issues linked to the student life cycle : from the application process, the registration step, learning and teaching (courses in an online format, blended/hybrid formats, "traditional" courses provided at the same time to online participants ; various learning activities and homework, grades), including the mobility dimension (learning agreements, mobility periods abroad ..) connected to or compatible with E+ developments including the European student card ; up to the awarding of credentials (diplomas, certificates, micro-credentials, open badges ..) and the issuing of diploma supplements.

## ● Private Cloud

On a totally different aspect, we have for now used very simple deployment options to reduce the time to market for our different services. Still, we know that as soon as the services are going to be more widely used, we will have to scale our infrastructure. To do so, we plan to build a private cloud based on OpenStack and Kubernetes. Of course, as much as we can we would open-source and share our deployment recipes in the form of Helm charts.



## ● Even more open-source

To pursue our commitment to sovereignty and interoperability, we would like to continue our journey toward open-source solutions. The only closed-source solution that we use for now is the collaboration platform Office365 together with Active Directory. While our central authentication platform will help us in combination with a new LDAP server to reduce the use of Active Directory, we will test multiple options as alternatives to Office365. Among them are [Matrix](#) to replace the chat service operated by Teams and [NextCloud](#) to replace the collaborative file editing and sharing service operated by Word, Excel and Powerpoint.



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



[www.ulyssseus.eu](http://www.ulyssseus.eu)

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