

unite!

University Network for Innovation,
Technology and Engineering

Usage of (Federated) Learning Management Systems in European University Alliances

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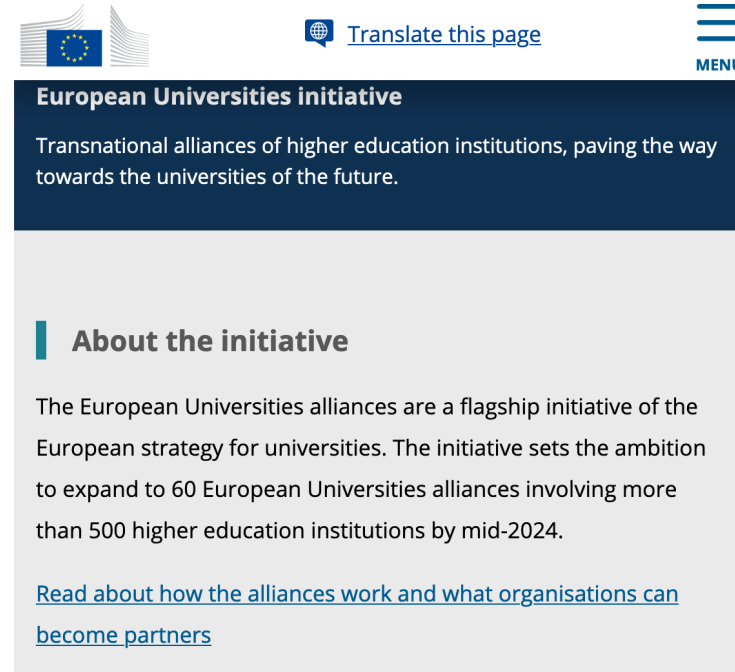
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Agenda

- Background: European University Alliance Unite!
- Research Approach
- Results
 - Use of federated/central Learning Management Systems (LMS) in European University Alliances
 - Use of LMS in the Unite! Alliance
- Discussion

European University Initiative

- Over 40 European university alliances promoting academic exchange and innovation
- Goals: enhance academic exchange, research cooperation, educational innovation
- Focus of this study: Unite! alliance and learning management system adoption



The screenshot shows the top section of the European Universities initiative website. At the top left is the European Union flag. To its right is a 'Translate this page' button with a globe icon. Further right is a 'MENU' button with three horizontal lines. Below these is a dark blue header with the text 'European Universities initiative' and a subtitle: 'Transnational alliances of higher education institutions, paving the way towards the universities of the future.' Below the header is a light gray section titled 'About the initiative' with a vertical bar icon. The text in this section states: 'The European Universities alliances are a flagship initiative of the European strategy for universities. The initiative sets the ambition to expand to 60 European Universities alliances involving more than 500 higher education institutions by mid-2024.' At the bottom of this section is a link: 'Read about how the alliances work and what organisations can become partners'.

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<https://education.ec.europa.eu/education-levels/higher-education/european-universities-initiative>

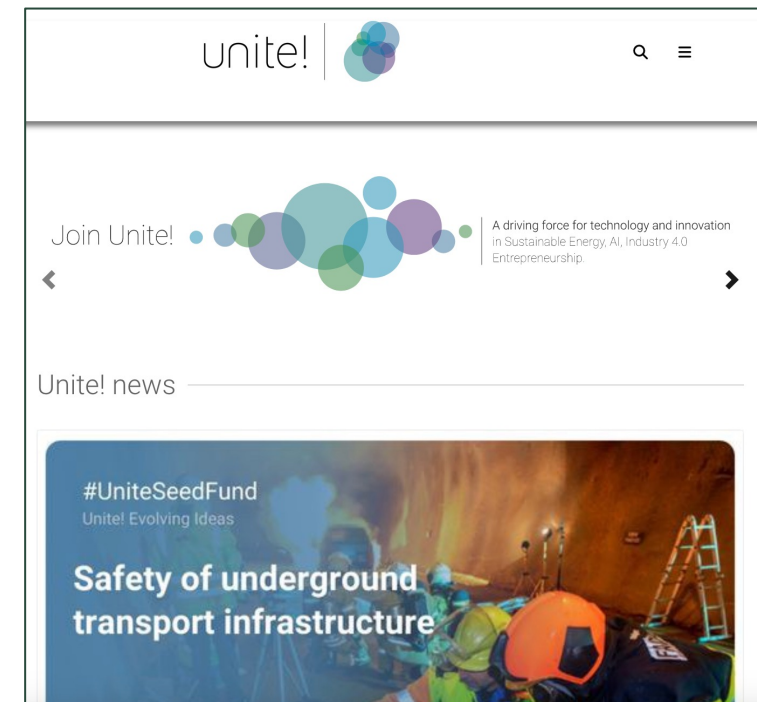
Background: Unite!

Case Study: Unite! Alliance

- <https://www.unite-university.eu/>
- Nine member universities

From Unite! Mission Statement 2030:

“Unite! creates the hybrid (virtual, physical and blended) and multilingual Unite! trans-European Campus with easily accessible joint educational offerings, shared and pooled resources, efficient services and green mobility”



© Unite! alliance, <https://www.unite-university.eu/>

Community 2 „Digital Campus“



- Responsible („only“) for digital infrastructure for teaching and learning
- Challenges in digital collaboration and infrastructure integration

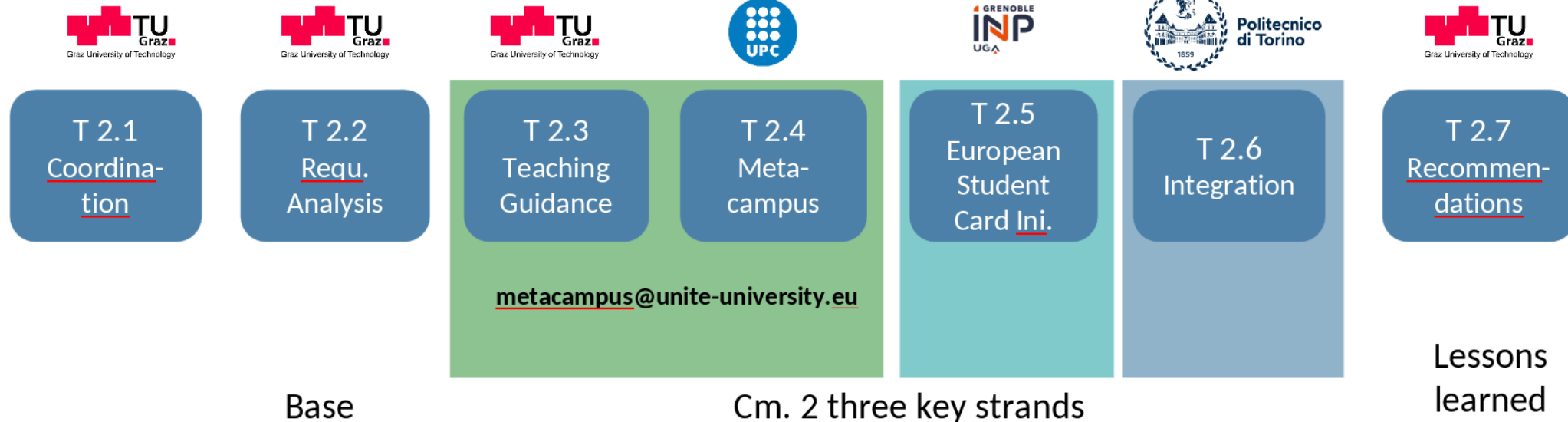
That's us!



(taken at our last project meeting,
03/2024 at TU Graz)
(c) Unite! Cm.2 | TU Graz



Organised in seven tasks



Unite!'s Digital Campus Infrastructure

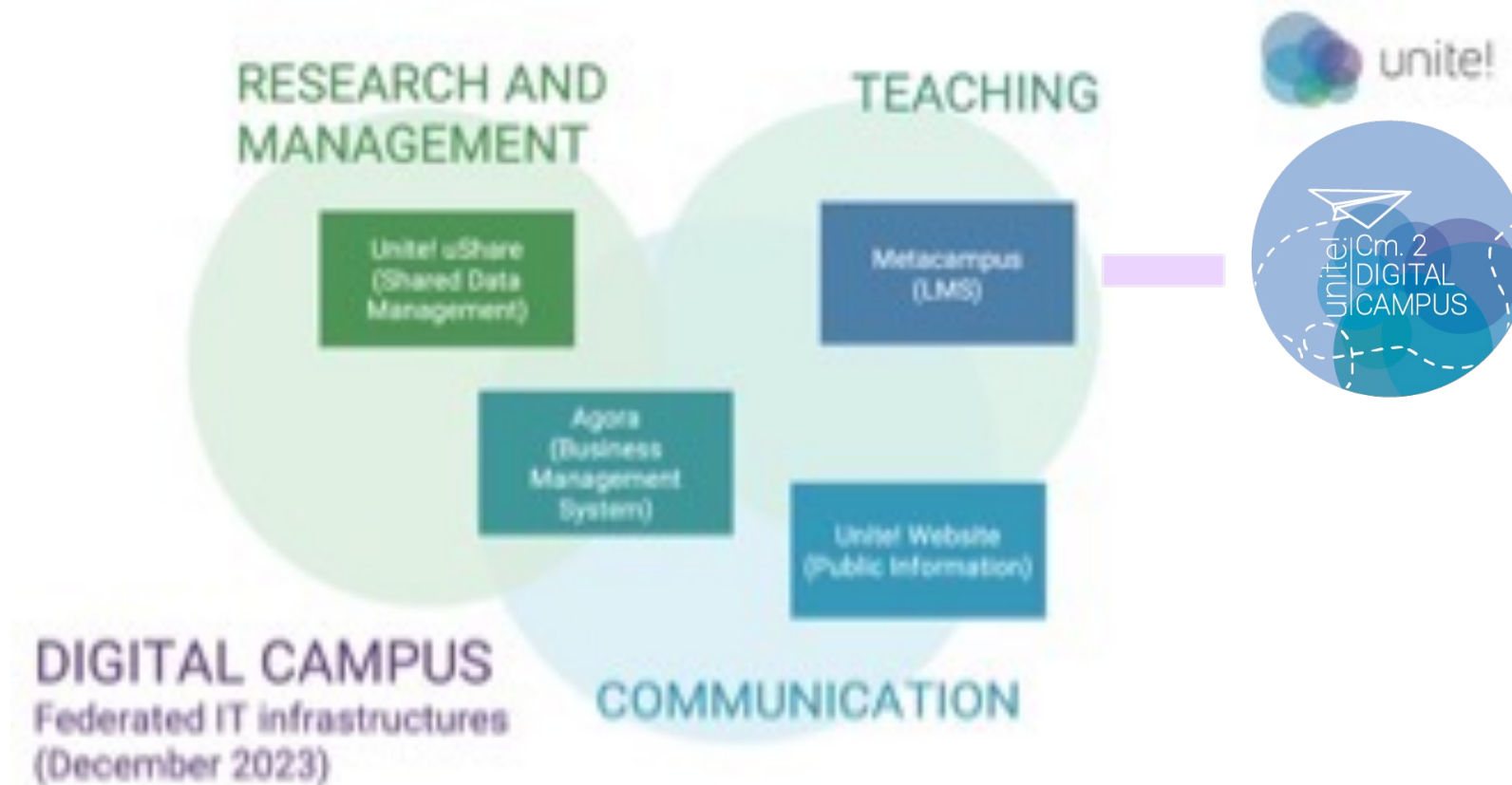
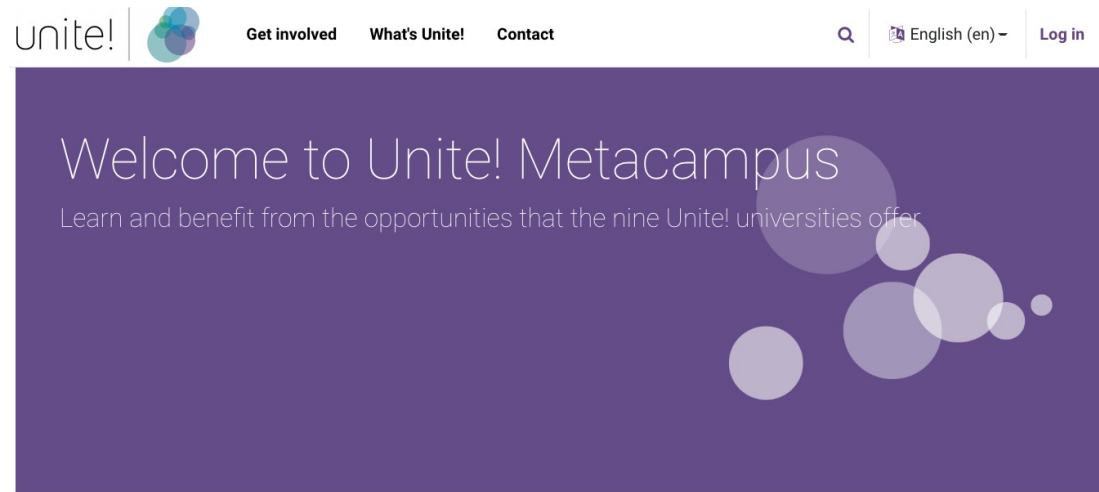
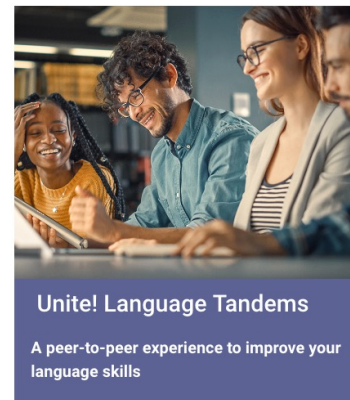


Figure 1: Overview of the Unite! Digital Campus Infrastructure Key Platforms and their key applications

Metacampus Platform



- Federated Learning Management System (LMS) based on Moodle (Open Source)
- <https://metacampus.unite-e-university.eu/>
- Features: interaction, multilingual support, eduGAIN authentication



Metacampus Platform

Purpose	Interaction among users in Unite! (teachers, students, staff)
Technology	LMS (learning management system)
Platform	Moodle
License	Open source
Developer/Maintainer	UPCnet
Responsibility	E+ (Cm.2)
Examples	Educational activities (courses), non-educational activities (video contest, student festival, student fair, language tandems)
Authentication	eduGAIN
Status	Pilots in use
Languages	English + 9 partners' languages

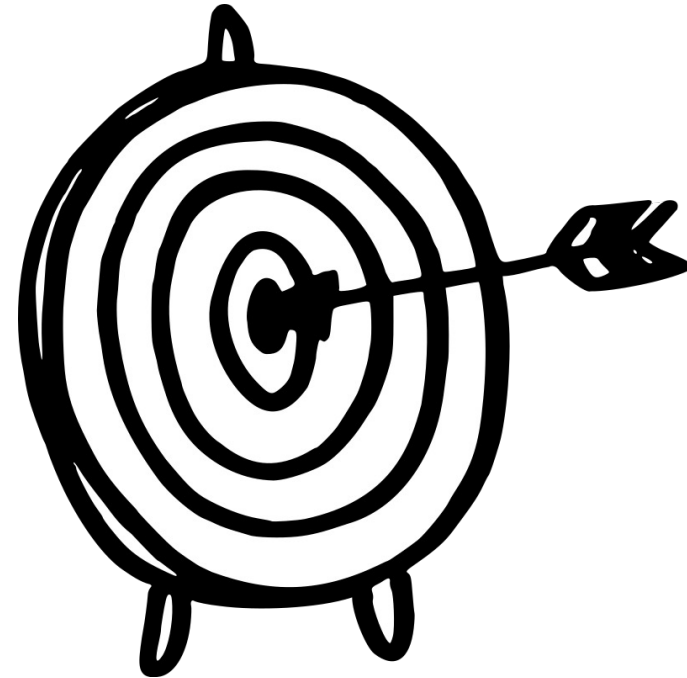
Table 1: Features of the Unite! Metacampus as federated platform in a European Alliance. Source: Ebner et al., 2023.



Research Approach

Research Objectives

- Assess LMS adoption in European alliances
- Focus on LMS within Unite!
- Explore technical and user challenges
- Identify potential solutions for interoperability



Research Questions and Methods



- Which LMS are currently used by European alliances for joint activities?
- Which LMS are currently used by the partners of the Unite! alliance?
- Desktop analysis of 44 European alliances (February 23)
- As BA thesis (Muchitsch, 2023)
- Data collection on LMS usage from Unite! partner universities (as part of a requirement analysis)



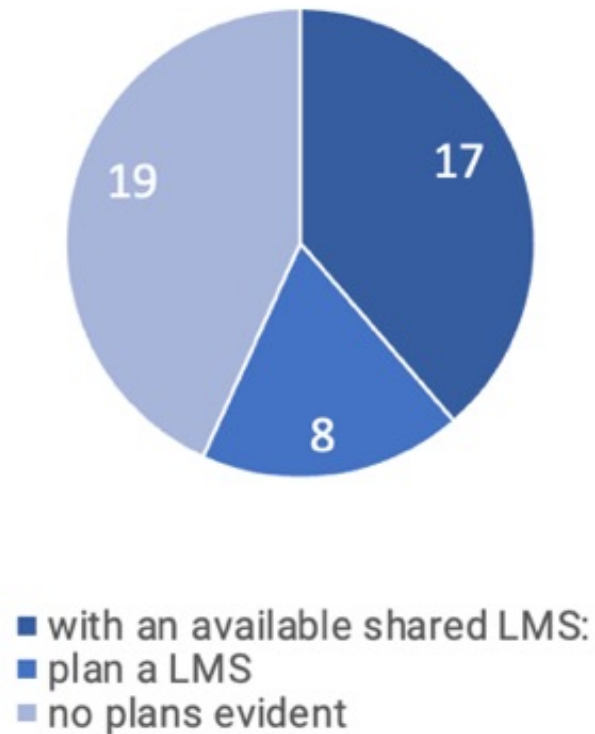
Result: LMS in European University Alliances

Existing Overview

Data/Partner	MUL	TU BAF	UP	TUC	SUT	ULE	HSMW
Main LMS	Moodle	OPAL	Academia	Open eClass	Moodle	Moodle	OPAL
Self-hosted or cloud-based	Self	Cloud	Self	Self	Self	Self	Cloud
Open source	Yes	No	No	Yes	Yes	Yes	No
Fee (€/year)	No fee	>20,000	1,000-5,000	No fee	No fee	No fee	>20000
Licensed users	250	250	200	200	1,800	1,192	7,600
Students	4,000	4,000	3,700	5,000	20,000	11,550	7,000
Secondary LMS platform	-	-	-	Moodle, Web-Courses	MS Teams	-	Moodle

Table 1: Summary of the results of the questionnaire on LMSs used in partner institutions of the European university alliance EURECA-PRO (Lagoudakis et al., 2022, Table 1, p. 493). © Lagoudakis et al., 2022

Federated LMS in European Alliances



- Analysis of LMS implementation across 44 alliances (Figure)
- 17 alliances with shared LMS, 8 planning, 19 without plans

Figure: LMS implemented by European university alliances according to their self-descriptions (Website) in February 2023 (left, N=44); Source: Muchitsch (2023).

Federated LMS in European Alliances

- Common platforms: Moodle, Agora, Ilias, Gala

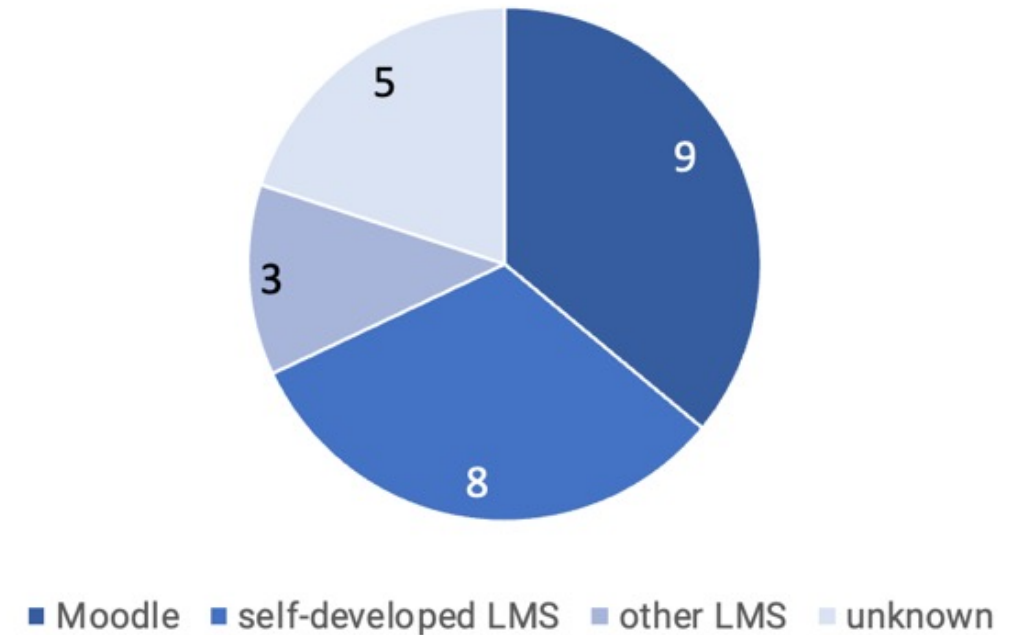


Figure: LMS in use by European university alliances according to their self-descriptions (Website) in February 2023 (n=25), Source: Muchitsch (2023).



Result: LMS in Unite!

Overview of Unite! partner universities

University	Abbr.	Country	Number of enrolled students	Number of academic staff	Number of admin. staff
Aalto University	Aalto	Finland	17,500	2,800	1,200
Graz University of Technology	TU Graz	Austria	16,500	2,700	1,100
Grenoble INP graduate school of engineering and management, University Grenoble Alpes	Grenoble INP-UGA	France	8,350	550	730
KTH Royal Institute of Technology	KTH	Sweden	13,500	2,750	1,250
Politecnico di Torino	PoliTO	Italy	38,700	1,191	986
Universidade de Lisboa	ULisboa	Portugal	47,800	3,400	2,100
Universitat Politècnica de Catalunya/BarcelonaTech	UPC	Spain	30,000	3,000	n.a.
Technical University of Darmstadt	TUDa	Germany	24,406	3,031	1,986
Wroclaw University of Science and Technology	Wroclaw Tech	Poland	21,176	2,288	1,957

Table: The Unite! alliance universities in overview.
(January 2024)

Overview of LMS usage by partner universities, LTI interface and EduGain

	Main LMS	Open-Source	Secondary LMS	LTI interface	MOOC platform	EduGAIN
TU Graz	Moodle	YES	-	YES	Moodle	YES
ULisboa	Fenix Platform	YES	Moodle, Open edX	NO (Moodle: YES)	Open edX	YES
UPC	Moodle	YES	-	YES	-	YES
Polito	DIDATTICA	YES	Moodle	YES	Open edX	YES
UGA-INP	Moodle	YES	Chamilo	YES	-	YES
TUDa	Moodle	YES	-	YES	-	YES
Wroclaw Tech	Moodle	YES	-	YES	-	YES
KTH	Canvas	NO	-	YES	Open edX	YES
Aalto	Moodle	YES	-	YES	Moodle	YES

Table: Overview of key issues concerning LMS in partner institutions of Unite! (10/2023).

Summary

- Predominance of Moodle
- Secondary LMS and integration with other systems
- Differences in technical and user readiness for Moodle

A decorative graphic in the top-left corner consisting of several overlapping circles in various shades of teal and light blue, creating a layered, organic effect.

Discussion

Challenges for Unite!

- Technical interoperability issues and importance of LTI integration: Continuous development and need for LTI pilots
- Ensuring equitable participation: Variability in LMS experience among teachers, students & staff

Discussion for European University alliances

- Benefits of federated LMS models
- Risks and technical disparities
- Importance of tailored solutions for diverse technical landscapes

Acknowledgements

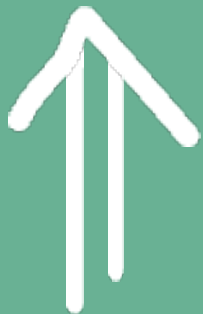
- Contributions of e-learning and IT experts from partner universities
- Gratitude to all collaborators
- Funding from the European Commission (Erasmus+)



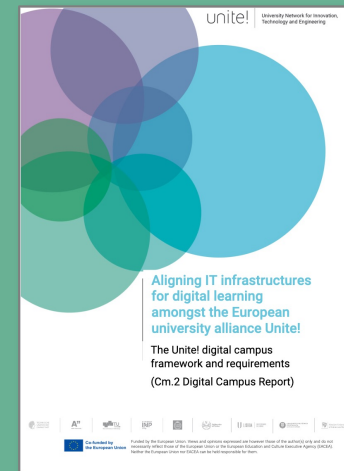
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