



Shared online repository and MUSense institutional Website (PR2)



European
Commission



European
Association of
Conservatoires



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Short Introduction

This report presents the outcomes and deliverables of Project Result 2 (PR2) of the MUSense project, which focuses on advancing the visibility and accessibility of the project's resources and results. As part of this effort, significant steps have been taken to establish a strong online presence through the creation of a unique project logo, the development of an informative website, and the launch of an online repository for sharing research findings, datasets, and related materials.

The project logo serves as a visual representation of MUSense, symbolizing the project's mission and objectives in a clear and engaging manner. The MUSense website has been designed to provide a user-friendly platform where stakeholders, researchers, and the public can access up-to-date information about the project's progress, upcoming events, and key deliverables.

Additionally, an online repository has been established to ensure that the project's outputs are easily accessible to a wider audience. This repository contains all relevant project data, publications, and other essential materials, fostering collaboration and transparency within the research community.



1. The Logo

The first action which has been taken at the beginning of the project was the creation of a Logo needed in order the project website, the repository but also all the documents of the project to acquire a “visual trademark”.

For this reason, 5 logo proposals was developed in order to, the MUSense team to be able to choose the one which suits the most to the aesthetic, the aims and content of the project:

Logo Proposal No1:



Logo Proposal No2:



Logo Proposal No3:



Logo Proposal No4:



Logo Proposal No5:



After a “referendum” between the project partners, was decided the logo proposal No5 to be adopted. Since then the Logo proposal No5 was added to the website, the repository and all the relevant project documents till the end of the project.

2. The MUSense website

First step for the development of the MUSense website was to reserve and buy a domain name. The domain name chosen from the Project Partners was: <https://musense.eu/>

After that the Ionian University project team, which was responsible for the website development has reserved the domain name and started structuring the website.

The development steps which was decided to be undertaken was the following:

- a. Internet research about the website structure
- b. Naming the website menus
- c. Technical specifications of the website and the Repository
- d. Website implementation

a. Internet research about the website structure

The website development team have carried out a thorough internet research in order to get an overall idea about the possible structures and layouts of the website. The main point of interest were websites of other EU projects or domains with relevant content.

b. Naming the website menus

Putting all the proposals together, the Project Partners the website development team concluded which menus should be added:

MUSense website menus:

- Project

Description of the MUSense Project

- Partners

Partner Institutions Official Names, Logos and links to the institutional websites

- Results

MUSense project results

- Repository

Link to the MUSense Repository

- Activities

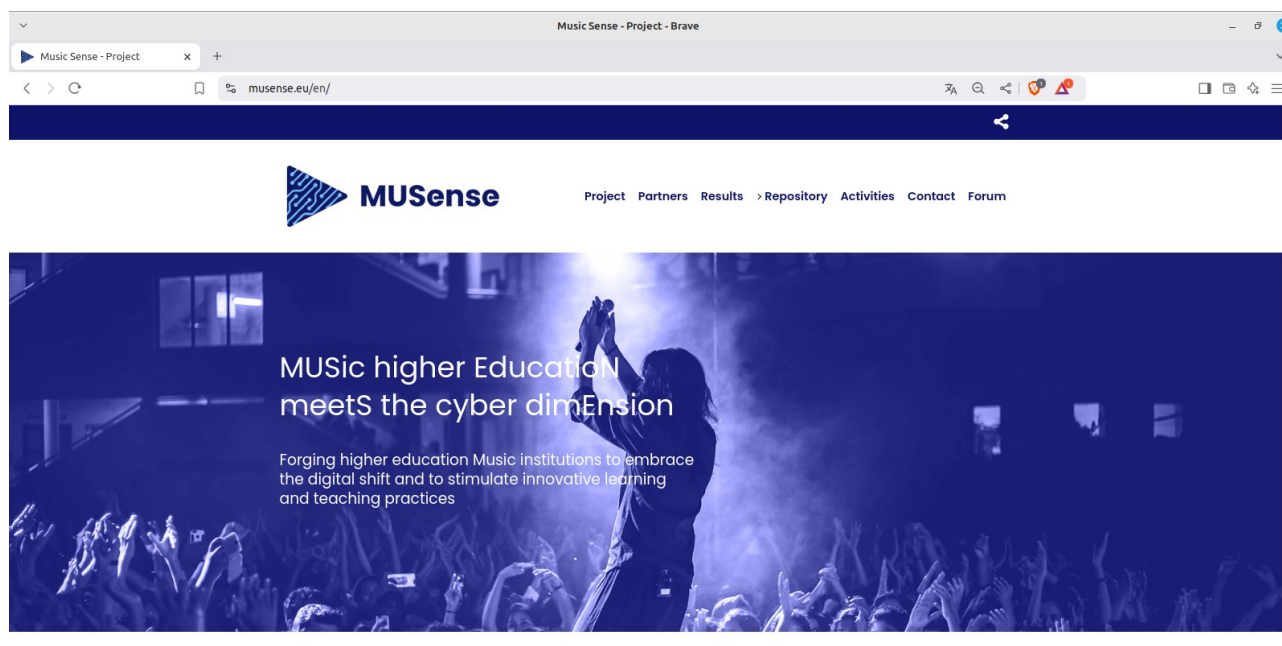
Information about all the MUSense Project activities

- Contact

A typical online form for contacting the General Coordinator of the MUSense Project (Conservatorio di Musica Alessandro Scarlatti di Palermo)

- Forum

A direct link of the MUSense Repository forum



(Screenshot of the MUSense main page)

c. Technical specifications of the website and the Repository

The MUSense informational portal and repository use infrastructure that aims for stability and security. The system's back end is based on a traditional LAMP software stack using the Debian distribution of the Linux operating system, the Apache web server software, the MariaDB relational database management system and the PHP server-side scripting language. The MUSense website and the online repository have been custom-made to address the educational and research requirements of the project. The web application uses the latest version of the PHP server-side scripting language on the back end, while making use of standard HTML, CSS and JS technologies on the front end. The use of established technologies ensures maximum compatibility with a vast array of devices, while at the same time taking advantage of the constant security and performance updates that popular technologies have to offer.

The sum of the platform's software runs on a dedicated private server on the infrastructure of the Ionian University, allowing high performance and a stable deployment environment. The hardware infrastructure is based on multiple processor cores and a high amount of memory and other resources, ensuring the platform's streamlined performance even under potential heavy load. All communication between users, visitors, administrators and content managers with both the repository and the informational portal makes use of the HTTPS secure transfer protocol, which utilizes end-to-end encryption using SSL/TLS certificates, thus ensuring the privacy and safety of all parties involved. Moreover, the system adheres to the standards of the General Data Protection Regulation of the

European Union, further enhancing user privacy. Finally both the website and repository adhere to the WCAG2.0 accessibility standards at an AAA level, ensuring that all content is properly accessible to all interested parties.

In order to promote the project and its results, as well as maximize findability of the contents of the digital online repository, the MUSense platform makes use of advanced Search Engine Optimization techniques. For every item the system automatically generates dynamic data graphs using both the OpenGraph and the TwitterCards standards, making sure that content from the platform can be shared optimally through social media platforms. Moreover, the Schema.org structured data model is used to increase machine-readability and further improve content dissemination. The combination of a tailored made web application, with a tried and tested technological sack and an strict adherence to international standards on security, privacy, accessibility and SEO leads to a robust and multifaceted online presence suitable to address the MUSense project's requirements and achieve its purpose.

d. Website implementation

The website was implemented already at the very early stages of the project in order to be ready to accept content created. During the Project implementation period the website went through a number of "fine tuning" actions in order to fulfill in the best way the aims of the project.

The website will stay on line at least 5 years after the completion of MUSense Project, ready to accept new content as needed. During this time, the Ionian University Project Team will be responsible to carry out the necessary updates (security updates, etc).

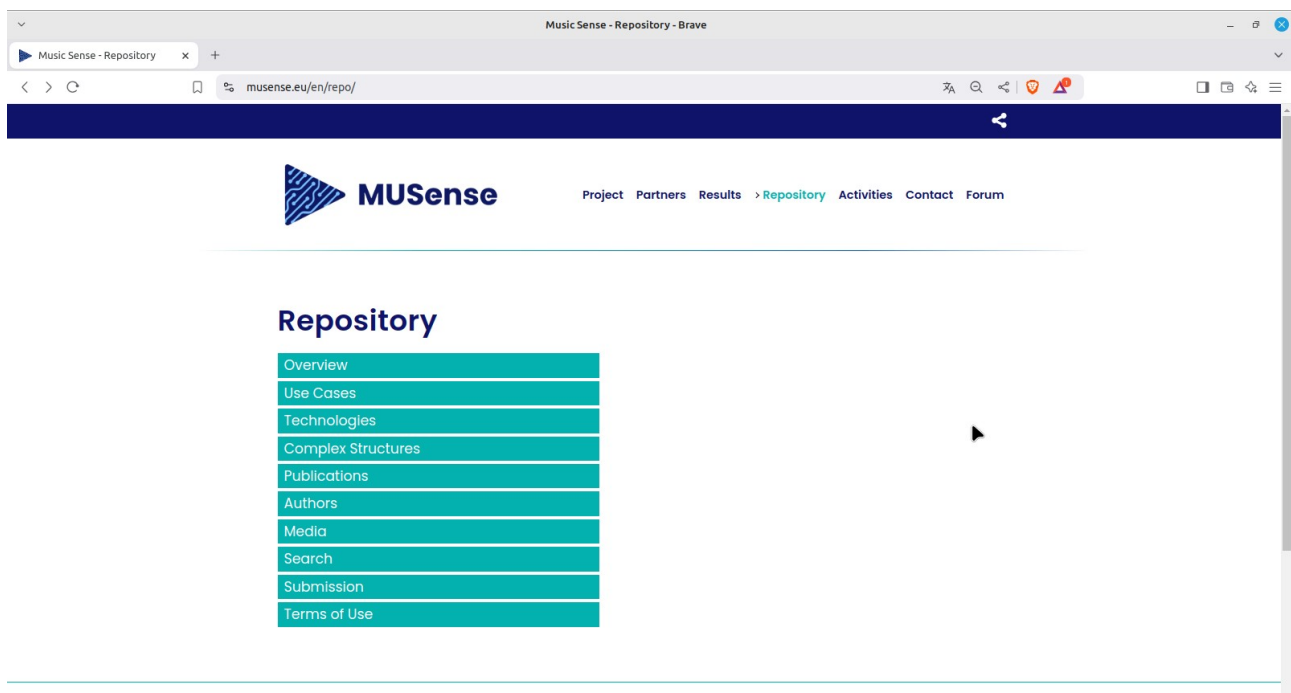
3. The MUSense Repository

The MUSense repository has been directly integrated in MUSense website and it appears under the following link: <https://musense.eu/en/repo/>

The development process has been implemented in the same manner like the MUSense website.

Unlike the Website, which contains general information aimed at dissemination, the repository aims to be a learning community for trainers, students, and others stakeholders in order to share, debate and increase the quality of new skills and methods. For this reason, a forum has been also created in the repository.

- Internet research about possible structures
- Repository taxonomy (T3)
- Setting the technical specifications
- Repository implementation
- Forum implementation



(The Repository start page)

4. Online Repository roles and permissions

1. Roles in an Online Repository

A. Administrator (Admin)

Role Overview: Administrators have the highest level of control and oversight in the repository. They manage system settings, user access, content moderation, and security.

Key Responsibilities:

User Management: Create, edit, and delete user accounts, assign roles, and manage user access.

System Settings: Configure platform settings, including integrations with external systems (e.g., authentication, backup, data storage).

Content Management: Approve or reject content uploads, manage metadata, ensure compliance with repository guidelines (including copyright and data protection policies).

Access Control: Define and modify roles and permissions for other users.

Monitoring and Reporting: Track user activity, generate reports on repository usage, and monitor for compliance with terms of use.

Security and Maintenance: Ensure the repository platform is secure, manage data protection measures, and perform regular maintenance.

Permissions:

Full access to all content and data.

Ability to add, edit, delete, or move any content.

Set up or modify access policies, including permissions for different roles.

Configure repository settings, backup schedules, and integrate tools.

View and generate system-wide reports.

B. Content Manager

Role Overview: Content managers oversee the materials uploaded to the repository, ensuring they are organized, properly categorized, and meet the platform's standards.

Key Responsibilities:

Content Review: Review and approve content submitted by contributors, ensuring compliance with copyright laws and the repository's guidelines.

Content Categorization: Tag and categorize content for easy access by users.

Content Curation: Highlight or feature valuable content to improve discoverability.

Metadata Management: Ensure proper metadata is attached to content for easier search and retrieval (e.g., keywords, author information, dates).

Permissions:

Ability to edit, approve, or reject submitted content.

Edit or update metadata associated with content.

Manage content categorization (tags, themes, or subject areas).

View user contributions and interactions with materials.

C. Contributor/Creator

Role Overview: Contributors are users who upload content to the repository. They may be researchers, educators, or other types of content creators.

Key Responsibilities:

Content Submission: Upload and submit original materials to the repository, such as articles, papers, datasets, or multimedia files.

Content Updating: Modify or update their content as needed, including fixing errors or adding new versions.

Licensing: Select the appropriate license for their materials (e.g., Creative Commons), ensuring that the rights of third parties are respected.

Permissions:

Upload and edit their own content.

Set licenses for their content (under the platform's guidelines).

View their own content and any related feedback or comments.

Access reports on their content's usage (e.g., views, downloads).

D. Viewer/Researcher

Role Overview: Viewers or researchers are users who primarily access content in the repository for reading, research, or educational purposes.

Key Responsibilities:

Access Content: Browse and search for content based on various criteria (e.g., keywords, categories, or authors).

Download: If allowed, download materials for offline use.

Citation: Use the materials in their own work, ensuring proper attribution where required.

Feedback/Comments: Provide feedback on content, if permitted.

Permissions:

View and download publicly available content (depending on licensing restrictions).

Access certain datasets, research papers, or educational materials based on their membership or access level.

Comment on content or participate in discussions if the platform supports such interaction.

E. Moderator

Role Overview: Moderators are users with permissions to manage interactions within the repository (e.g., comments or discussions) and enforce community standards.

Key Responsibilities:

Content Moderation: Review user-submitted content for adherence to guidelines and ensure it's appropriate for the platform.

Community Interaction: Monitor discussions and user-generated content (comments, forums) for inappropriate behavior or violations of terms.

Report Violations: Flag or report content that violates the repository's policies or legal requirements.

Permissions:

Edit or delete inappropriate comments or forum posts.

Report user behavior that violates community guidelines.

Monitor user interactions with content (e.g., comments, feedback).

May have limited content management access (e.g., removing harmful content).

2. Permissions and Access Control

Permissions in a repository should be carefully defined to maintain security and organization. Common permission levels for content management and user interaction include:

Read: View content without making any changes.

Write: Submit or modify content (upload, edit).

Delete: Remove content from the platform.

Admin: Full access to all repository features, including user management, content approval, and system configuration.

Comment: Leave feedback or engage with content without making permanent changes.

Approve/Reject: For content managers to approve or reject submissions based on platform policies.

3. Permissions Structure Example

Role	Content Access	Upload/ Submit Content	Edit Content	Delete Content	Manage Users	System Settings
Administrator	All content	Yes	Yes	Yes	Yes	Yes
Content Manager	Approved content	Yes	Yes	No	No	No
Contributor	Own content	Yes	Yes (Own)	Yes (Own)	No	No
Viewer	Public content	No	No	No	No	No
Moderator	All content (moderate)	No	No	No	No	No

4. Ethical Considerations in Managing Roles and Permissions

When setting up roles and permissions for an online repository, consider the following ethical principles to ensure fair and secure usage:

Privacy Protection: Ensure that only authorized individuals can access personal or sensitive data. Permissions should be set to ensure compliance with data protection laws (e.g., GDPR).

Fair Access: Ensure that content is accessible to all users as per the repository's policies and licensing terms, and that no individual or group is unfairly restricted or discriminated against.

Transparency: Users should be clearly informed about their permissions and any limitations on their access or activities within the repository.

Security: Roles and permissions should be used to minimize the risk of unauthorized access or malicious activity. Regularly review and adjust permissions to ensure security.

5. MUSense Repository Administration: The MUSense Partner Institutions roles

A. Administrator (Admin):

Ionian University

B. Content Manager:

1. Lunds University
2. Erasmushogeschool Brussel

C. Contributor/Creator:

All partners

E. Moderator:

1. Erasmushogeschool Brussel
2. Yasar Universitesi
3. Conservatorio di Musica di Stato "Alessandro Scarlatti" - Palermo

6. Terms of Use for MUSENSE online Repository

Effective Date: 01/01/2025

Welcome to the MUSENSE online Repository. These Terms of Use (the "Terms") govern your use of our website, services, and the resources available through our repository (the "Platform"). By accessing or using the Platform, you agree to comply with and be bound by these Terms. If you do not agree to these Terms, you should not use the Platform.

1. Acceptance of Terms

By accessing or using the Platform, you acknowledge that you have read, understood, and agree to be bound by these Terms, as well as any future amendments. If you are using the Platform on behalf of an organization, you represent that you have the authority to bind the organization to these Terms.

2. User Eligibility

The Platform is intended for use by individuals who are at least 13 years old. If you are under 13, you must not access or use the Platform.

3. User Accounts

Some parts of the Platform may require you to create an account. When registering, you agree to provide accurate, current, and complete information, and to keep your account details updated. You are responsible for maintaining the confidentiality of your account credentials and for all activities that occur under your account. If you suspect unauthorized access to your account, you agree to notify us immediately.

4. Use of the Platform

Permitted Uses: You may use the Platform to:

Access, view, and download publicly available materials and resources.

Contribute educational resources or content in accordance with the terms set out in these Terms.

Engage in discussions, forums, or other community spaces provided by the Platform.

Prohibited Uses: You may not:

Violate any applicable laws, regulations, or third-party rights, including copyright, data protection, or intellectual property laws.

Use the Platform for any unlawful, fraudulent, or harmful purposes, including but not limited to spamming, phishing, or distributing malware.

Reproduce, distribute, or publicly display materials from the Platform without proper authorization or in violation of these Terms or applicable licenses.

Disrupt or interfere with the operation of the Platform, or engage in any activity that could harm, disable, or overload the Platform's infrastructure.

5. Content Ownership and Licensing

- **Ownership:** Unless otherwise specified, the content available on the Platform (including text, images, videos, software, and other materials) is the property of MUSENSE online Repository or its licensors and is protected by copyright and other intellectual property laws.
- **User-Generated Content:** By submitting content (such as materials, articles, resources, or comments) to the Platform, you:
 - Grant MUSENSE online Repository a non-exclusive, royalty-free, worldwide license to use, display, and distribute the content on the Platform for educational, research, and promotional purposes.
 - Warrant that you have the necessary rights and permissions to share the content, and that the content does not infringe upon the rights of any third party.
- **Licensing of Materials:** Some materials on the Platform may be available under specific licenses, such as Creative Commons licenses, which govern how they can be used, shared, or adapted. You agree to respect and comply with the terms of any applicable licenses.

6. Data Protection and Privacy

- **Privacy Policy:** We respect your privacy and are committed to protecting your personal information. Please review our **Privacy Policy**, which explains how we collect, use, and protect your data.
- **Data Use:** By using the Platform, you consent to our collection and processing of personal data as described in the Privacy Policy.
- **User Responsibility:** You are responsible for ensuring that any data you submit or share on the Platform (including personal data or content) complies with applicable data protection laws.

7. Restrictions on Content

You agree that you will not upload, post, or share any content that:

- Is illegal, defamatory, or offensive.
- Infringes upon the intellectual property or privacy rights of others.
- Violates any applicable law or regulation.
- Is misleading or deceptive.

8. Termination and Suspension of Access

We may suspend or terminate your access to the Platform at any time and for any reason, including if you violate these Terms or engage in activities that disrupt the functioning of the Platform. Upon termination, your right to use the Platform will immediately cease, and you must discontinue all use of the Platform.

9. Disclaimers and Limitation of Liability

- **No Warranties:** The Platform is provided "as is" and without any warranties, express or implied, including but not limited to the accuracy, completeness, or reliability of the content provided.
- **Limitation of Liability:** In no event shall MUSENSE online Repository be liable for any direct, indirect, incidental, special, or consequential damages arising out of or in connection with your use of the Platform, including any loss of data, content, or profits.

10. Indemnification

You agree to indemnify, defend, and hold harmless MUSENSE online Repository, its officers, employees, agents, and affiliates from any claims, losses, damages, liabilities, and expenses (including legal fees) arising out of your use of the Platform or your violation of these Terms.

11. Governing Law

These Terms are governed by and construed in accordance with the laws of Greece, without regard to its conflict of law principles. Any disputes arising out of or related to these Terms shall be subject to the exclusive jurisdiction of the courts located in Greece.

12. Changes to Terms of Use

We reserve the right to update or modify these Terms at any time. Any changes will be posted on this page with an updated effective date. By continuing to use the Platform after any changes are posted, you agree to be bound by the revised Terms.

13. Contact Information

If you have any questions about these Terms, please contact us at:

MUSENSE online Repository

Email: jtoulis@ionio.gr

7. T1. State of art analysis aims at finding all the available methodologies for supporting university studies in cyber and distance performances

1. Introduction

The ongoing digital transformation has revolutionized university education, especially in the areas of cyber studies and distance learning. As institutions strive to deliver quality education remotely, a variety of methodologies, tools, and technologies have emerged to facilitate effective learning and academic performance. This state of the art analysis seeks to identify and evaluate the methodologies that are currently used to support university studies in cyber and distance learning contexts, focusing on their strengths, challenges, and future directions.

2. Cyber Studies: Methodologies and Approaches

Cyber studies encompass disciplines such as cybersecurity, digital forensics, data science, and artificial intelligence, where the goal is to provide students with the necessary skills and knowledge to address the challenges of an increasingly digital world. The following methodologies are commonly used in cyber studies:

Blended Learning: Blended learning combines traditional face-to-face classroom instruction with online learning experiences. This approach allows students to engage with both theoretical and practical aspects of cyber studies, ensuring that they are well-prepared for the professional world.

Example: Many universities incorporate real-world labs and simulations in cybersecurity courses, where students can test their skills in controlled environments.

Project-Based Learning (PBL): In this approach, students engage in practical projects that mimic real-world scenarios in cyber domains such as network security, ethical hacking, or software development. PBL encourages students to learn by doing, developing their problem-solving and teamwork skills.

Example: University courses that involve collaboration on cybersecurity simulations or competitions like Capture the Flag (CTF) events.

Virtual Labs and Simulations: These are critical for offering hands-on experience in cyber studies, as they allow students to interact with complex, realistic systems in a safe, controlled environment. Virtual environments help students practice their skills without risking real-world systems.

Example: Cloud-based platforms like AWS Educate or Cyber Range simulations that replicate network security attacks and defenses.

Online Course Platforms and MOOCs: Massive Open Online Courses (MOOCs) and online course platforms (e.g., Coursera, edX, Udacity) offer flexible, scalable

learning solutions for students pursuing cyber-related degrees. These platforms often feature expert instructors, interactive modules, and peer interactions.

Example: Cybersecurity and data science courses offered by institutions like Stanford, MIT, and the University of Maryland via platforms such as Coursera.

Collaborative Learning: Given the interdisciplinary nature of cyber studies, collaboration across disciplines is vital. Universities have increasingly adopted collaborative learning environments that foster teamwork between students from various backgrounds, such as computer science, engineering, and business.

Example: Cross-university cyber threat intelligence teams that allow students to collaborate on solving cybersecurity challenges.

3. Distance Learning: Methodologies and Approaches

Distance learning involves delivering educational content remotely, often via the internet. It encompasses various methodologies aimed at providing an effective and engaging learning experience for students who may not be able to attend on-campus courses. Key methodologies for supporting distance learning in universities include:

- **Asynchronous Learning:** Asynchronous distance learning allows students to access course materials and complete assignments at their own pace, making it particularly beneficial for students who are managing work or family commitments.
 - **Example:** Pre-recorded lectures, discussion forums, and quizzes that students can engage with on their own schedule.
- **Synchronous Learning:** This method involves real-time interactions between instructors and students, often using video conferencing platforms like Zoom or Microsoft Teams. Synchronous learning offers opportunities for immediate feedback and direct engagement, making it more interactive than asynchronous approaches.
 - **Example:** Live webinars and virtual office hours where students can ask questions and participate in discussions.
- **Gamification and Adaptive Learning:** To enhance engagement and motivation, many universities have incorporated gamification techniques (such as badges, points, and leaderboards) and adaptive learning systems, which tailor content to the individual learner's progress.
 - **Example:** Platforms like Duolingo (for language learning) and Coursera's adaptive quizzes that adjust difficulty levels based on student performance.
- **Learning Management Systems (LMS):** An LMS provides a centralized platform for managing course content, tracking student progress, and fostering communication between instructors and students. Platforms such as Moodle, Blackboard, and Canvas are commonly used in distance learning.
 - **Example:** Universities use these systems to distribute readings, assignments, and grades, and to facilitate student-teacher communication.

- **Video-Based Learning:** Video lectures and tutorials are key in distance learning programs. High-quality video content, combined with interactive elements like quizzes, can enhance learning and retention.
 - **Example:** Platforms such as Khan Academy and YouTube have contributed significantly to the popularization of video-based learning for distance students.
- **Virtual and Augmented Reality (VR/AR):** These emerging technologies are being integrated into distance learning programs to provide immersive experiences. VR and AR can help simulate real-world scenarios that students can engage with, enhancing learning in fields such as engineering, architecture, and healthcare.
 - **Example:** VR-based medical training programs that allow students to practice surgeries and procedures remotely.
- **AI-Based Tutoring and Support Systems:** Artificial intelligence is being increasingly utilized to provide personalized learning experiences. AI tutors can assist students with problem-solving, offer real-time feedback, and even grade assignments.
 - **Example:** Platforms like Coursera use AI to offer personalized recommendations based on student learning behavior.

4. Challenges and Gaps in Current Methodologies

Despite the numerous advancements in supporting university studies in cyber and distance performances, there are several challenges that need to be addressed:

- **Access and Digital Divide:** Not all students have equal access to reliable internet, modern devices, or the technological infrastructure needed for distance learning. This digital divide can create disparities in learning opportunities.
- **Engagement and Motivation:** Keeping students engaged in online and remote learning environments is a challenge. The lack of face-to-face interaction can lead to feelings of isolation and decreased motivation.
- **Assessment Integrity:** Ensuring the integrity of assessments in online and remote learning environments can be difficult, as students may have access to unauthorized resources. Institutions are exploring more secure methods of testing, such as remote proctoring and secure exam environments.
- **Adaptation to New Technologies:** Many instructors are not fully trained to use emerging technologies like VR/AR, AI tutors, or advanced LMS systems. Professional development programs are essential for educators to stay current.
- **Cybersecurity Concerns:** As the field of cyber studies grows, so do the risks of cyber threats targeting educational institutions. Universities must continually update their cybersecurity measures to protect sensitive data and student information.

5. Future Directions

Looking ahead, several trends and future directions are likely to shape the methodologies supporting university studies in cyber and distance performances:

- **Increased Use of AI:** AI will play a larger role in personalizing learning, automating administrative tasks, and providing real-time student support.
- **Blockchain for Credentialing and Assessment:** Blockchain technology may be used to ensure the security and validity of academic credentials and assessments, providing students and employers with verified records of achievements.
- **Further Integration of VR/AR:** As VR/AR technologies become more affordable and accessible, their use in remote and cyber learning environments is expected to increase, providing immersive and practical learning experiences.
- **Hybrid Learning Models:** Future distance education programs may increasingly adopt hybrid models, combining online, in-person, and virtual experiences to offer the flexibility students need while maintaining academic rigor.

6. Conclusion

University studies in cyber and distance learning are evolving rapidly, driven by technological advancements and the changing needs of students. The methodologies currently available, including blended learning, virtual labs, gamification, and AI-powered support systems, provide a solid foundation for enhancing student engagement, improving performance, and fostering a dynamic, flexible learning environment. However, there are challenges that need to be addressed, including accessibility, assessment integrity, and the need for faculty development. By continuing to innovate and adapt, universities can ensure that they are providing the best possible education for the digital age.

8. T2: “State of art analysis aims at finding the available materials/tools/links related to the course module and guidelines”

Introduction

In today’s rapidly evolving educational environment, it is essential for educators and students alike to have access to the most relevant materials, tools, and resources to enhance learning outcomes. Whether in traditional classrooms or online learning platforms, students rely on diverse tools and materials to support their academic performance. A comprehensive **state-of-the-art analysis** can play a critical role in identifying the most effective resources available for specific course modules and guidelines. This analysis not only helps in optimizing the learning experience but also ensures that students have access to the latest advancements in technology and academic practices. The aim of this essay is to examine the various materials, tools, and links available to support course modules and guidelines, highlighting their significance, effectiveness, and role in contemporary education.

Course Modules and Guidelines: Key Components for Success

Before discussing the tools and materials available to support course modules, it is important to first define what these modules and guidelines encompass. A **course module** typically includes the main topics, subtopics, learning outcomes, and assessments that make up a particular subject or course. The **course guidelines** refer to the instructional strategies, evaluation criteria, learning objectives, and recommended study methods that provide structure and direction for students throughout their academic journey.

In the context of online learning or digital education, both course modules and guidelines must be well-structured, accessible, and engaging. This is where the integration of modern tools and materials becomes essential. For students and educators, identifying relevant, up-to-date resources and platforms is a crucial step toward enhancing the quality of learning and ensuring success in course outcomes.

Available Materials for Course Modules

The materials available for course modules can take many forms, depending on the discipline, the course structure, and the delivery method (in-person, hybrid, or online). These materials include textbooks, online journals, multimedia resources, and interactive tools that align with course objectives. Below are some of the most prominent types of materials available to support course modules.

Textbooks and Online Reading Materials: Traditional textbooks and academic journals remain central to most course modules. However, in an increasingly digital learning environment, universities and educators are moving towards **open educational resources (OERs)**—freely accessible, openly licensed documents and media. These include online textbooks, research papers, articles, and video

lectures. Platforms such as **Google Scholar**, **JSTOR**, and **ResearchGate** offer students access to academic research, while OER platforms like **OER Commons** provide free access to textbooks and resources.

Multimedia Resources: In addition to traditional reading materials, **multimedia resources** such as video tutorials, podcasts, interactive simulations, and infographics are increasingly used to engage students in different course modules. For example, platforms like **YouTube**, **Khan Academy**, and **Coursera** offer high-quality video lectures that break down complex topics into manageable, digestible pieces. These materials are particularly useful in subjects that require visual or practical learning, such as engineering, biology, or art.

Interactive Tools: Interactive tools such as quizzes, self-assessment tools, and virtual labs allow students to practice their skills and test their knowledge in real time. **Quizlet**, **Kahoot!**, and **Socrative** are widely used in various fields to promote engagement and active learning. Virtual laboratories and simulations, such as those available on platforms like **Labster** or **PhET**, provide students with the opportunity to conduct experiments remotely, which is particularly valuable for science and engineering students in online learning environments.

Case Studies and Real-World Examples: Another vital component of course materials includes **case studies** and **real-world examples** that allow students to apply theoretical concepts to practical scenarios. Resources such as **Harvard Business Review**, **MIT OpenCourseWare**, and **Case Centre** provide access to case studies that enrich the academic experience by providing students with opportunities to solve real-world problems.

Available Tools for Supporting Course Guidelines

While materials help students learn the content of a course, **tools** provide the infrastructure for managing, delivering, and assessing learning. Effective tools are integral to successful course delivery, especially in online and hybrid learning environments. The following tools are commonly used to support course guidelines and facilitate the learning process.

- **Learning Management Systems (LMS):** Platforms like **Moodle**, **Blackboard**, **Canvas**, and **Google Classroom** serve as the digital hub for course materials, assignments, grades, and communications. They allow instructors to create and organize modules, distribute course guidelines, and track student progress. LMS platforms often integrate with third-party tools and allow for the seamless sharing of resources, making them essential for both in-person and online course delivery.
- **Collaboration and Communication Tools:** Instructors and students must communicate regularly, and tools that enable collaboration are essential for keeping learners engaged. **Zoom**, **Microsoft Teams**, and **Google Meet** are widely used for video conferences and live sessions, allowing students and instructors to interact in

real time. In addition, platforms like **Slack** and **Discord** are frequently used for group discussions, peer feedback, and collaborative projects, enhancing communication and teamwork in both online and hybrid environments.

- **Assessment Tools:** For instructors to effectively evaluate student progress, various **assessment tools** can be used to align with course guidelines. Platforms such as **Turnitin** for plagiarism detection, **Gradebook** for grading management, and **Qualtrics** for surveys and feedback collection are indispensable for monitoring student performance. Additionally, digital assessment tools that incorporate AI and machine learning, such as **Smart Sparrow** or **Gradescope**, offer personalized feedback and automate grading, making assessments more efficient and equitable.
- **Plagiarism Detection and Citation Tools:** To support students in academic writing, **plagiarism detection tools** such as **Turnitin** or **Copyscape** ensure that students submit original work, while **citation management tools** like **EndNote**, **Zotero**, and **Mendeley** help students properly attribute sources. These tools assist students in adhering to academic integrity standards while also streamlining the citation process.

Links and Online Resources

Along with the physical and digital tools, numerous **online links and platforms** support the effective delivery of course modules and guidelines. Educational websites, digital libraries, and scholarly databases offer a wealth of knowledge and resources for both students and instructors. These resources serve as essential supplements to course materials and guidelines.

- **University and Open Educational Platforms:** Many universities provide free access to online courses, materials, and modules through platforms like **MIT OpenCourseWare**, **edX**, and **Coursera**. These resources allow students to access high-quality content, often created by leading experts in their respective fields. They are an excellent supplement to the standard course materials and often feature additional resources like practice exercises, quizzes, and certification options.
- **Subject-Specific Repositories and Databases:** For specific academic fields, dedicated repositories such as **arXiv** for physics and mathematics, **PubMed** for life sciences and medicine, and **IEEE Xplore** for engineering provide a wealth of peer-reviewed articles, research papers, and conference proceedings. These platforms are particularly important for graduate-level students or those working on specialized topics in their courses.
- **Government and Industry Resources:** Government websites, non-profit organizations, and industry-specific platforms also provide valuable learning materials. For instance, the **U.S. Department of Education** offers guidelines for curriculum development, while organizations like **World Health Organization**

(WHO) and **United Nations (UN)** offer materials that align with courses in public health, international relations, and sustainability.

Conclusion

A state-of-the-art analysis of available materials, tools, and links for supporting course modules and guidelines demonstrates the vast array of resources available to enhance student learning. From textbooks, multimedia content, and interactive simulations to learning management systems, assessment tools, and collaborative platforms, there is a growing emphasis on integrating technology and digital resources into the learning process. These resources not only support course content but also ensure that students have the tools they need to manage their academic journey effectively. The effective use of these materials and tools, when aligned with clear course guidelines, can foster a more engaging, flexible, and impactful learning experience. By staying updated on the latest advancements in educational technology, universities and educators can continuously improve the delivery and accessibility of their courses, ultimately benefiting the students they serve.

9. T3: Definition of Taxonomy Architecture for the classification of materials mainly focused on the identification of IT devices, music categories, and audience typology

Project Background and Existing Platforms

The intended users of the MUSense project are music students, teachers, technicians, and staff, as well as other stakeholders in the music industry, such as educators, researchers, and professionals involved in the evolutionary process where existing technologies are used within teaching, learning and performance setting using unique new ways. However, here there is another aspect, that in order to find an innovative use for a technology, one has to know what it is, how it functions, how it is setup and its problems and deficiencies. Clearly this is a common problem not only within the music world but across the audiovisual sector and the interactive art performance scene. This was clearly pictured within our further investigation that showed that the other potential users of the repository might include:

Higher education institutions and teaching staff: The repository could be used by higher education institutions as a resource for curriculum development and as a way to stay up-to-date on the latest trends and techniques in the music industry.

- **Researchers:** The repository could be used by researchers as a source of information and data on cyber and distance performances, and as a way to connect with other researchers and practitioners in the field.
- **Music industry professionals:** The repository could be used by music industry professionals as a resource for information on new technologies and best practices, as well as a way to stay connected with other professionals and network with potential collaborators.
- **Music enthusiasts:** The repository could be used by music enthusiasts as a way to learn more about cyber and distance performances, and to discover new and innovative ways to experience music online.
- **Audio and Visual Artists and Creators:** All those who wish to use the technologies collected within the repository for the advancement of their ideas and projects.

By making the repository open and accessible to a wide range of users, the MUSense project can contribute to the ongoing development and evolution of the music industry and the wider world of performance, and support the successful adaptation to the virtual performance world. Our research identified a number of repositories that are already in place, providing their functions to creators. They provide information and resources on audiovisual art technologies, and that can help artists and creators to research and choose

technologies for their projects. Some examples of these repositories, platforms and research findings reported in various publications include:

- Creative Applications Network (www.creativeapplications.net): This membership-driven platform offers a range of resources and information on creative technologies, including audiovisual art technologies, and provides a community forum for artists and creators to share their work and experiences.
- The Creators Project: This online platform features a range of articles, interviews, and other resources on creative technologies, including audiovisual art technologies. It also features a portfolio of work by artists and creators who are using these technologies in their projects. Their YouTube channel provides access to content and interviews: <https://www.youtube.com/thecreatorsproject>
- Creative Tech Week: This annual event showcases the latest creative technologies, including audiovisual art technologies, and provides a range of workshops and talks for artists and creators to learn more about these technologies and how to use them in their work. <https://www.creativetechweek.se>
- Arts Collaboratory (AC) is a translocal ecosystem consisting of 25 diverse organisations around the world focused on art practices, processes of social change, and working with broader communities beyond the field of art. <https://artscollaboratory.org/>
- The Tech As Art (2021) publication entitled “Supporting Artists Who Use Technology as a Creative Medium” compiled by the National Endowment for the Arts in Washington (<https://www.arts.gov/>) which is available online (<https://www.arts.gov/sites/default/files/Tech-as-Art-081821.pdf>) reports within pages i and ii, five main findings which directly relate to our research in the sense that the user analysis is already documented.

Design Requirements and Content Structure Design

The design of the website and repository for the MUSense project, takes a number of design factors into account to ensure a positive user experience for these audiences:

- Usability: The website and repository should be easy to navigate and use, with a clear and intuitive structure and layout. This can help users to quickly find the information and resources they need, and to engage with the project more fully.
- Accessibility: The website and repository should be designed with accessibility in mind, so that users with disabilities or different levels of technical expertise can access and use the resources and activities provided. This might include using responsive design principles, providing accessible names for UI elements, and using clear and simple language.
- Relevance: The resources and activities provided through the website and repository should be relevant and valuable to the intended users. This might involve

providing information and resources on the latest trends and techniques in the music industry, or offering training programs and workshops that are tailored to the needs and interests of music students and professionals.

- **Engagement:** The website and repository should be designed to be engaging and interactive, to encourage users to participate and engage with the project. This might include incorporating social media elements, providing opportunities for user-generated content, or offering interactive activities and challenges.

MUSense Repository Taxonomy Architecture

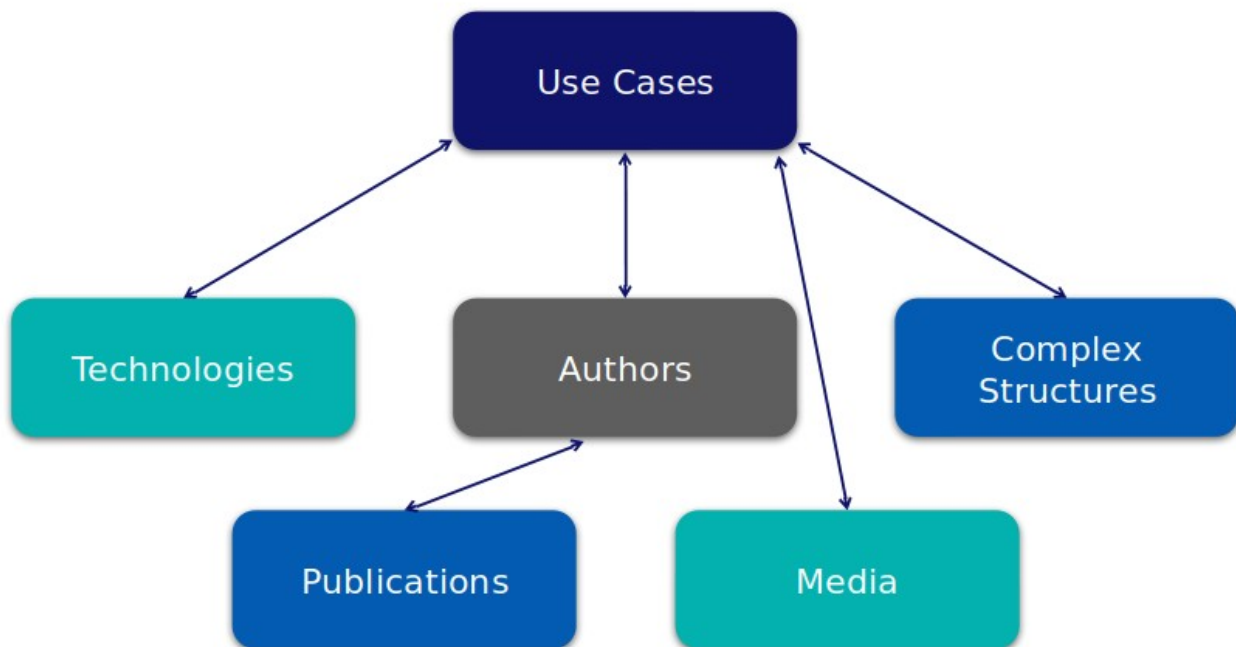
The basic data structure for MUSense is comprised of four main entities: Use Cases, Technologies, Complex Structures, Authors and Publications.

1. The entity named “**use_cases**” contains information regarding a singular learning/teaching activity (use case). This entity will include a title for the activity, a series of keywords, a description, a text detailing its requirements in spaces and other practical and technical issues, a text describing the experience of its participants, one or more related technologies (as a relationship with the technologies entity), one or more related complex structures (as a relationship with the complex structures entity), one or more related people (as a relationship with the people entity), an optional featured image, attached PDF/DOC/ZIP files with supplementary material such as musical scores, posters etc and one or more links to media (audio/video) from the activity itself or from interviews of the participants.
2. The entity named “**technologies**” contains information related to the technologies used during a learning/teaching activity. This entity includes a title for each technology, a description, a text with instructions for its implementation, one or more related use cases (as a relationship with the use cases entity), an optional featured image and attached PDF/DOC/Zip files with technical specifications or usage manuals.
3. The entity named “**complex_structures**” contains information regarding more complex structures comprising of multiple use cases, such as a curriculum or a workshop/festival. This entity will include a title for the complex structure, a description, one or more related activities (as a relationship with the use cases entity), an optional featured image and attached PDF/DOC/ZIP files with material relating to it (posters, invitations, schedules etc). The order of related use cases in a complex structure will be customizable and the overall organization will be detailed in the description.
4. The entity named “**Authors**” contains information related to the people involved in a learning/teaching activity. This entity includes a name for each person, a short bio of the person, information about its affiliations with an organization and one or more related use cases (as a relationship with the use cases entity).

5. The entity named “**publications**” contains information related to the hole spectrum of the MUSense subject. The Information which will be provided in the category will be:

- The title of the publication
- An abstract
- A citation
- Related elements (the name of the Author)
- The publication in pdf or if needed, a link to the publication

The MUSense Repository Taxonomy



Search and cross reference possibilities

Among the main content categories, the MUSense offers also additional search and cross reference possibilities:

- **Search:** The search engine is offering the possibility to search the repository content with key words. The search can be focused in specific content categories by using the “advance options”
- **Authors:** This option is providing a full list of the content authors

- **Media:** This option is providing a full list of media content of the repository

Other MUSense repository menus

- **Submission:** The MUSense repository includes also an online content submission form. This form can be used from all the content creators which will want to enrich with their content / media / case studies/ articles / publications etc the MUSense repository in the future. After submitting the content, the content will be reviewed according to the process described in the 5th chapter of this document.
- **Terms of Use:** In this section the Musense repository user can find the terms of use. The terms of use are presented in the 6th chapter of this document.



MUSense

[Project](#) [Partners](#) [Results](#) › [Repository](#) [Activities](#) [Contact](#) [Forum](#)

Search

Advanced Options

- Use Cases
- Technologies
- Complex Structures
- Publications
- People
- Media

- [Overview](#)
- [Use Cases](#)
- [Technologies](#)
- [Complex Structures](#)
- [Publications](#)
- [Authors](#)
- [Media](#)
- [Search](#)
- [Submission](#)
- [Terms of Use](#)

The repository “Search Menu”

Submission

Submit your Contribution

* Required Fields

* **Name**

* **Surname**

* **Email**

* **Information for:**

Select the various aspects of the repository that your submission involves.

- Use Cases
- Technologies
- Complex Structures
- Publications
- People
- Media

* **Attach File:**

File containing your content - DOC/DOCX or PDF up to 8MB

 See on MyPage section page.

Link:

Provide a link to an external service (Google Drive, Dropbox, OneDrive etc) which includes any additional content.

Password:

Provide a password if it is required to access your provided content.

* **Additional Comments:**

Provide a short summary of your content and any other detail that is necessary for its inclusion in the repository.

- [Overview](#)
- [Use Cases](#)
- [Technologies](#)
- [Complex Structures](#)
- [Publications](#)
- [Authors](#)
- [Media](#)
- [Search](#)
- [Submission](#)
- [Terms of Use](#)

8795

[\[Get New Code\]](#)

* **Code:** Fill in the code as it appears in the image

10. T4: “Exploring laws related to copyright and data protection and licenses and terms of use; ethics requirements to guarantee the respect of legislature on sharing materials”

1. Copyright Law

A. Basics of Copyright Law

Copyright law is designed to protect original works of authorship such as literary, artistic, musical, and other creative works. When you create original content, you automatically gain the copyright to that work, and others are prohibited from using it without your permission.

- **Ownership:** The creator of the work generally owns the copyright, unless it is transferred or assigned to another entity (e.g., employer or publisher).
- **Rights Granted:** Copyright grants the creator exclusive rights to:
 - Reproduce the work.
 - Distribute copies.
 - Display or perform the work publicly.
 - Create derivative works.
- **Duration:** In many jurisdictions, copyright lasts for the life of the creator plus an additional number of years (usually 70 years in the U.S. and the EU). After this, the work enters the **public domain**, meaning it can be freely used by anyone.

B. Fair Use and Fair Dealing

- **Fair Use (U.S.):** Under U.S. law, certain uses of copyrighted works are considered "fair," meaning they can be used without permission under specific circumstances, such as for criticism, commentary, education, research, or parody.
- **Fair Dealing (UK, Canada, etc.):** Similar to fair use, fair dealing allows limited use of copyrighted material for purposes like research, criticism, and review, but the scope is narrower.

C. Licensing and Permissions

Licenses are agreements that allow others to use copyrighted works under specific conditions. Two common types are:

- **Exclusive License:** The licensee (the person receiving the license) has exclusive rights to use the work.
- **Non-exclusive License:** The creator can grant the same rights to multiple licensees.
- **Creative Commons Licenses:** These are open licenses that allow creators to share their works with specific conditions. Common licenses include:
 - **CC BY** (attribution required),
 - **CC BY-SA** (share-alike requirement),

- **CC BY-NC** (non-commercial use only).

D. Infringement and Enforcement

Unauthorized use of copyrighted materials is considered infringement, and the copyright owner can take legal action, including sending **takedown notices**, suing for damages, or seeking other remedies.

2. Data Protection Laws

A. GDPR (General Data Protection Regulation)

- **Scope:** Applies to the collection, storage, and processing of personal data of individuals within the EU or by organizations offering goods or services to individuals in the EU.
- **Key Principles:**
 - **Data Minimization:** Only collect data that is necessary for the intended purpose.
 - **Purpose Limitation:** Data should only be used for the specific purposes for which it was collected.
 - **Transparency:** Individuals must be informed about how their data is being used.
 - **Data Security:** Organizations must implement appropriate measures to protect data from breaches.
 - **Rights of Individuals:** Includes rights to access, rectification, erasure (right to be forgotten), portability, and objection.
- **Consent:** The individual's consent is often required before collecting personal data, and it must be freely given, specific, informed, and unambiguous.

B. CCPA (California Consumer Privacy Act)

- **Scope:** Applies to businesses collecting personal data of California residents. The law provides individuals with rights to know what personal data is being collected, request access to it, and delete it.
- **Key Rights:**
 - Right to know what data is being collected.
 - Right to delete personal data.
 - Right to opt-out of data sales.

C. Other Regional Laws

- **Data Protection Act (UK):** Governs personal data processing in the UK and aligns with GDPR.
- **HIPAA (Health Insurance Portability and Accountability Act, U.S.):** Protects medical data.
- **PDPA (Personal Data Protection Act, Singapore):** Regulates data protection in Singapore.

3. Licenses and Terms of Use

A. Licensing Content

- **Licensing Agreements:** When sharing content in an online repository, it's essential to specify how others can use the content. A **license** is needed to grant permission to use the content legally.
 - **Open Access Licensing:** Often used in educational settings, where content is made freely available but with restrictions based on licensing (e.g., Creative Commons).
 - **End-User License Agreement (EULA):** Used for software, specifying how users can interact with the program.
- **License Enforcement:** The terms of a license should be clear, and users must comply with them. If a user violates a license agreement, the content creator may take legal action.

B. Terms of Use for Platforms

- **What They Include:** Terms of Use define how users may interact with the platform, what content they can upload, and what is prohibited. It also specifies the rights of the platform and user responsibilities.
 - **Acceptable Use Policy (AUP):** Details the types of behavior that are not acceptable on the platform.
 - **Content Ownership and Licensing:** Clarifies who owns the content uploaded to the platform and how it may be used or shared.
 - **Privacy and Data Protection:** Outlines how the platform handles personal data of its users.
 - **Dispute Resolution:** Specifies the methods for resolving any disputes (e.g., arbitration, court proceedings).

4. Ethics in Sharing Materials

A. Respecting Copyright

- **Proper Attribution:** Always give credit to the original creator by following the rules of the license.
- **Avoiding Infringement:** Never upload or share materials that you do not have the right to distribute. If materials are protected by copyright, ensure that the necessary permissions or licenses are in place.

B. Data Protection Ethics

- **User Privacy:** Ensure that personal data is not shared or used inappropriately. If data is shared, users must be fully informed, and their consent must be obtained.

- **Anonymization:** Where possible, use anonymized data to protect the identities of individuals.
- **Transparency:** Be clear about the data you collect, how it will be used, and who has access to it.

C. Providing Clear Licensing Information

- **Transparency in Licensing:** Make the licensing terms clear and easy to understand, ensuring users know exactly how they can use the materials.
- **Compliance with Ethical Standards:** When choosing licenses, consider the ethical implications of the restrictions they impose (e.g., non-commercial use, share-alike) and how they affect the sharing and reuse of educational content.

D. User Education

- **Raising Awareness:** Educate users about their legal and ethical obligations when using the repository. Provide resources or guidance on copyright, data protection, and licensing so that they can make informed decisions.
-

5. Ethical Requirements to Guarantee Respect of Legislation

- **Transparency:** Ensure that all users and contributors are aware of the legal framework surrounding the content they share, including licensing, copyright, and data protection obligations.
- **Informed Consent:** Obtain explicit consent for data collection and use, ensuring that individuals understand how their data will be processed and shared.
- **Fair and Equitable Access:** Avoid practices that could exploit or discriminate against certain groups. Ensure that content is made available in a way that promotes inclusivity and fairness.
- **Data Minimization:** Only collect the data necessary for the stated purpose, and provide users with clear options to control their information.
- **Respect for Creator Rights:** Recognize and respect the intellectual property rights of creators by providing proper attribution and adhering to the terms of use and licenses.

11. T5. Constant update of materials included into the repository and in the Website, also considering the outputs achieved during the execution of PRs

The MUSense website and the repository are in a process of continuous updating with topics and content concerning all the actions and results of the program. Based on our commitment, the repository will continue to be enriched for the next 5 years at least. In the same way, the website will be updated with any content that the management team will decide that its important to be published.

Since the MUSense project is completed, there are the following sections of the website which will continue to be updated with content on demand:

- The **Activities** section: In this section will be reported any development concerning possible repercussions of the Musense project, repository updates, etc.
- The **Repository** section: Since this is the link to the repository, which will stay on line for at least the next 5 years, this will stay “the most lively” place of the website.
- The **Forum** section: We hope the MUSense forum to become the next years a meeting and academic and artistic dialogue place for artist, students, researchers and of course any other possible stakeholders.
- The **Contact** section: With the on line contact form, the visitors and the users of the MUSense website and repository will be able to contact anytime the Coordinating Institution (Conservatorio di Musica Alessandro Scarlatti di Palermo) for any additional information needed, to report any kind of terms of use violation or any other issue which the head of the consortium has to be aware of.



The Museense Project