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European Network for Catalysing Open Resources in Education

May 2022

Technology Circle Event - Round 2

encoreproject.eu/event/oer-technology-circle-2/

Matteo Uggeri **-** *Fondazione Politecnico di Milano*

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Technology Circle

What Encore+ is doing and did so far.

ENCORE+ is building the European OER Ecosystem *through a coordinated European approach which can enact the value of OER as a catalyst and multiplier.*

These circle events will address the need for ***a more comprehensive collaboration bringing together particular groups, networks and initiatives*** *in order to move from a series of individual OER initiatives into a European OER Ecosystem.*

“Like to Get to Know You Well…”

Can we play *chatfall*?

I’m going to ask a question.

READY?

“Like to Get to Know You Well…”

Can we play *chatfall*?

Please answer in the chat
following your ‘gut feeling’

STEADY?

“Like to Get to Know You Well…”

Can we play *chatfall*?

“What’s the first word that comes to mind when you think of *open education*?”

GO!

*A **robust, sustainable and quality-assured OER repository** has a series of characteristics and dependencies.*

*This complexity underlines the **need to identify success criteria.***

*The investigation will take into account not just EU examples but focus on the selection criterion of usage and community penetration, looking at diverse existing repositories that have been able to evolve over time such as **Merlot, OER Metafinder, Nanohub, OASIS, OERCommons, Skills Commons.***

D3.1 Proof of Concept (PoC) of key features of OER infrastructure

*Mapping and describing the **features and goals of OER providers in the case studies,** identifying and exploring features used to gather insight intelligence to strengthen innovation.*

*Explore features in **user-driven production chains that produce high learning impact.***

*Extensive **testing of existing OER Repositories** through user interviews and by analysing feedback from users.*

*Web-analysis tools to map trends and track actual usage of existing resources to **document key performance success indicators.***

T3.2 - D3.2

*Develop scenarios for and **showcase a future integrated European OER Ecosystem.***

*Cutting Edge **Technology Showcase for European OER.***

*Design: **Wireframes and mockups of the potential European OER-RT Ecosystem,** and related technological solutions.*

T3.2

The task will include:

- *OER innovation examples in which **multidisciplinary integration of academic and technological environments in co-production collaborations is implemented.***
- *Explore opportunities for **integrating modules, features, etc. from 3rd party developers** to share relevant learning resources.*
- ***Incentives and motivations** which OER Repositories use and promote for **different kind of stakeholders to produce, use and share OERs.***
- ***Models for co-producing content with high competence environments** such as foundations, research environments, public organisations and other stakeholders.*

D.3.2

*We will **develop a set of scenarios, and design a showcase based on sound technological understanding** and describing a set of success factors in building entrepreneurial communities.*

*We will provide **suggested solutions for embedding microservices from 3rd party contributors based on open source content creation tools,** technological platforms and contents.*

*We will **describe innovative and open technologies as microservices integrated in the OER ecosystem.***

→

The outcome publication will **promote awareness and competence in this area, improving sustainability through shared strategization and coordination.**

T3.3 - D3.3

Investigate the Ed Tech ecosystem around OER innovation.

Innovation success features for OER Repositories.

Identify good practices and specific evidences whose characteristics make them ***the 'state of the art' of OER,*** *how they analyse user data to gain 'intelligence' through AI and what their models for incentivizing users are, as well as how they build innovation areas for OER.*

D3.3

List working sustainability models for public and private funding *for OER repositories.*

We will investigate the Ed Tech innovation ecosystem around OER repositories in higher education and business with ***the goal of identifying good practices and specific evidences whose characteristics make OER repositories 'state of the art' including how they analyse user data to gain 'intelligence' through AI*** *and what their models for incentivizing users are, as well as how they build innovation cultures for OER.*

→

A concise analysis of the current ed-tech environment around OER repositories, and derive a **set of recommendations**.

T3.3

Investigate the Ed Tech ecosystem around OER innovation.

This task will:

- *Identify and analyse success factors in OER innovation partnerships, funding and stakeholder commitment. This will identify good practices in specific 'state of the art' cases of OER; describe how they analyse user data to gain 'intelligence' through AI; and user incentivization models*
- *Describe sustainable ed-tech funding models in ed-tech for various elements of the OER ecosystem*
- *Explore models and strategies of cooperation between OER RT and ed-tech communities to develop political and organisational ownership (national, EU, UNESCO)*
- *Explore how OER repositories can promote conglomerate collaborations between commercial entrepreneurship and public enterprises.*

T3.4

Create and demonstrate the H5P OER Content Hub

This task will experiment how a state of the art hub for OER (built using HP5, X5Gon and CANVAS technologies) will look like and implement example versions of such hub, where stakeholders can create, share and reuse advanced editable and translatable interactive content and where it is possible to interface with both free and commercial services. HP5 and X5Gon are free and open source collaborative frameworks for content management which supports the creation, sharing, reuse and remix of interactive OER content.

This process and output have to be reviewed and re-organized.

Technology Circle

Today...

Technology Circle Event 2 - Now

13:00 - Welcome & Housekeeping
13:03 - Introduction to the approach and goals of the Technology Circle (this)
Short presentation of the work done so far for the proof of concept.
Sharing of short online quiz on relevant stakeholders: developers, creators or users
13:15 - Introduction to AI and OER and the outline of proposed technology integration
13:45 - *Cutting Edge Technology Showcase for European OER*
Share link, ask for more initiatives in the chat
14:00 - Open debate
14:30 - *Conclusion of the event*

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INTERNATIONAL COUNCIL FOR OPEN AND DISTANCE EDUCATION

DHBW Duale Hochschule Baden-Württemberg

The Open University

UNIR LA UNIVERSIDAD EN INTERNET

K4A knowledge for all

Joubel

Fondazione Politecnico di Milano

canvas

DCU Ollscoil Chathair Bhaile Átha Cliath Dublin City University

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AI and OER: Integrating Ecosystems

3rd May 2022

Sahan Bulathwela, UCL/K4A

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OER 101

***O**pen **E**ducational **R**esources (OERs)* are teaching, learning and research materials in *any medium*, digital or otherwise, that reside in the public domain or have been released under an *open license* that permits *no-cost access, use, adaptation and redistribution* by others with no or limited restrictions.

5Rs of OER – the basis for technology development

The right to…

- ***R**etain* means that the resource can be freely copied, downloaded and stored;
- ***R**euse* allows resources to be used in different contexts (classroom; home; online, etc.) in an unaltered format;
- ***R**evise* conveys that the content can be altered, edited, revised or otherwise changed (e.g. to update or translate a resource);
- ***R**emix* permits a resource to be combined with other resources to create something new (e.g. an anthology, remix or 'mash-up' or a bundle);
- ***R**edistribute* enables the republishing and sharing of a resource (in original or altered forms).

OER Pain Points*

- Disconnect between stakeholders (Teachers, Learners, Educators…) and technological solutions.
- Quality Assurance

  - Meta Data, User Feedback, Content Revision, Correctness…

- Discoverability and Visibility of OERs

* https://encoreproject.eu/2021/10/07/oer-technology-circle-position-paper-no-1/

OERs are scattered all over the world

- Hundreds/ Thousands of repositories scattered all over the world
- Each repository focuses on a domain/language/study level/medium etc…
- These repositories are highly fragmented.

AI to Rescue OERs

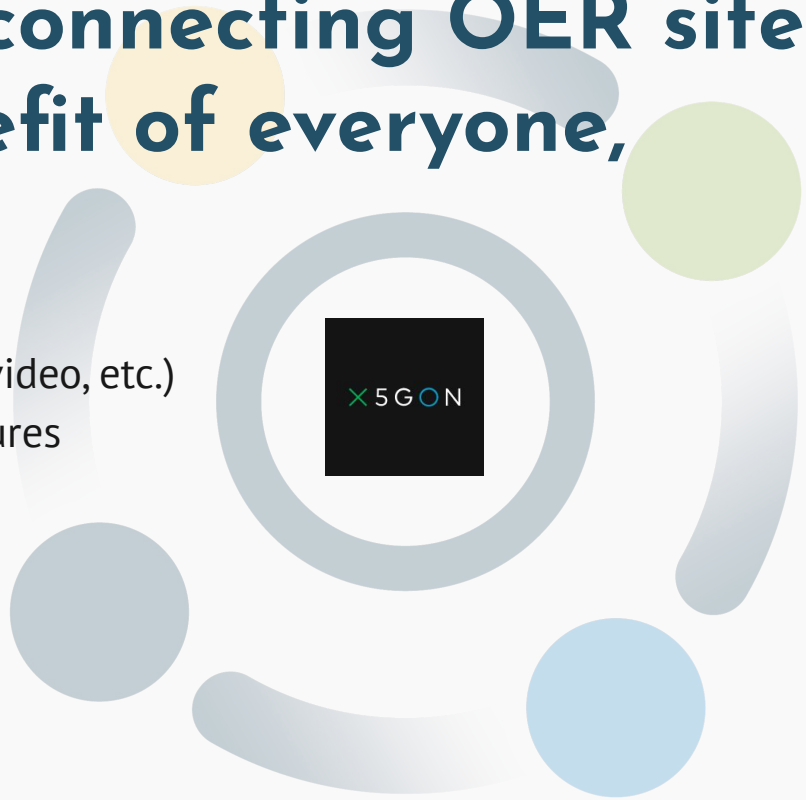
- Metadata harvesting and content understanding
- Enriching materials with additional information at scale to improve quality
- To enable personalisation and intelligent search via learner and content matching.

X5GON: Connecting OERs with AI

- Convergence of OER media and provide equal accessibility to all
- Leveraging AI to index, understand and match content with appropriate lifelong learners
- Via content understanding, quality assurance and *learner modelling*

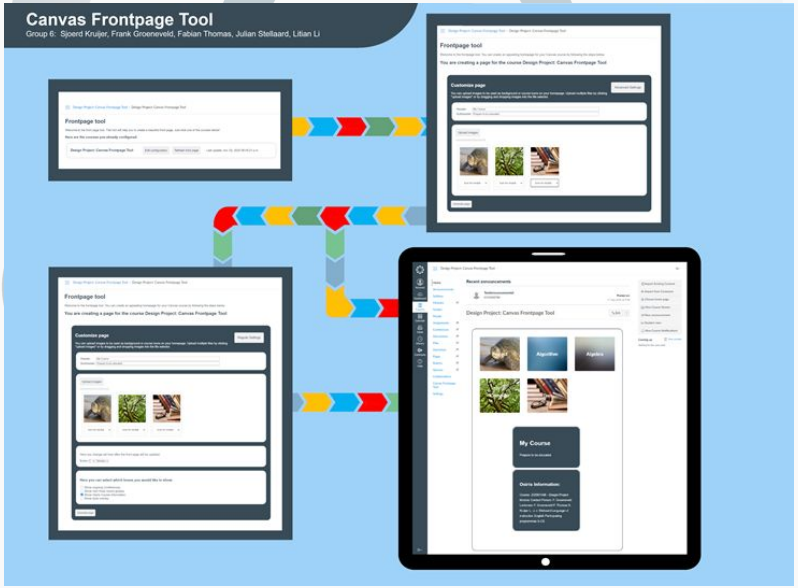
X5GON: using AI for connecting OER sites for the collective benefit of everyone, everywhere

X-**Modal:** Different material types (text, audio, video, etc.)
X-**Cultural:** Materials produced in different cultures
X-**Domain:** Different scientific domains
X-**Lingual:** Multiple languages
X-**Site:** Different repositories



Canvas: Connecting OERs to Teaching

- Learning Management Systems (LMS) are a primary gateway to bridge learners to resources.
- Canvas is a popular LMS used by many educational institutions.
- Access to OERs within LMS is a game changer for adaptation of OERs



H5P: NextGen Interactive OERs

- Futuristic pedagogies going beyond static instruction are on the rise.
- Interactive materials allow users to engage with online content much better
- A portfolio of interactive components that stimulate the learner

Connecting OERs

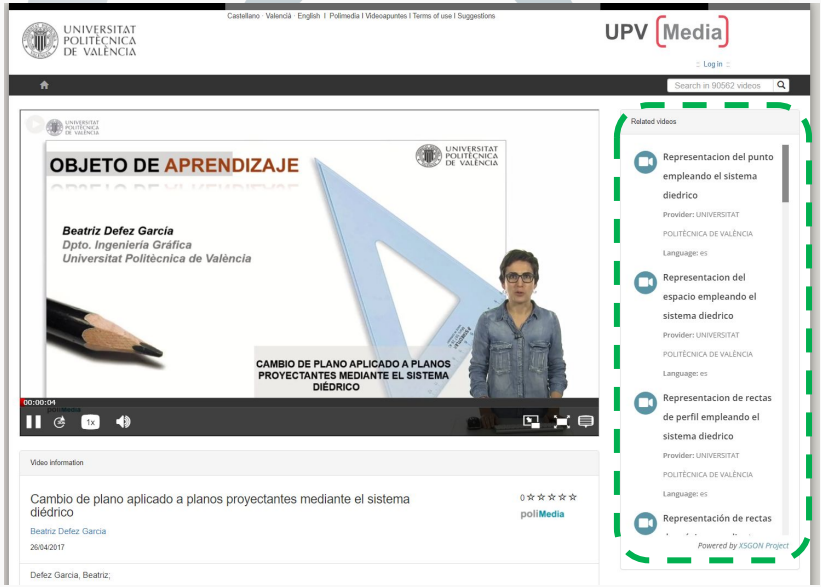
- Backbone infrastructure
- Improve user experience by improving discoverability
- Two approaches

  - Minimum Invasive Embedding

  - All OERs under One roof

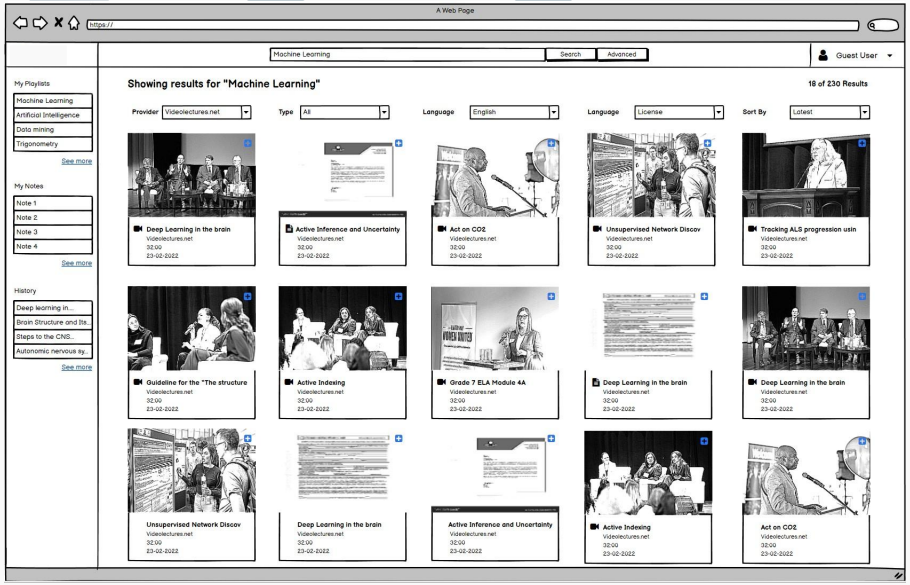
Embedding OER connectivity (Implicit)

- First, all OER should be discovered and indexed in a central collection: X5GON
- Can provide a small section using which users can navigate to different repositories to quench their information thirst.

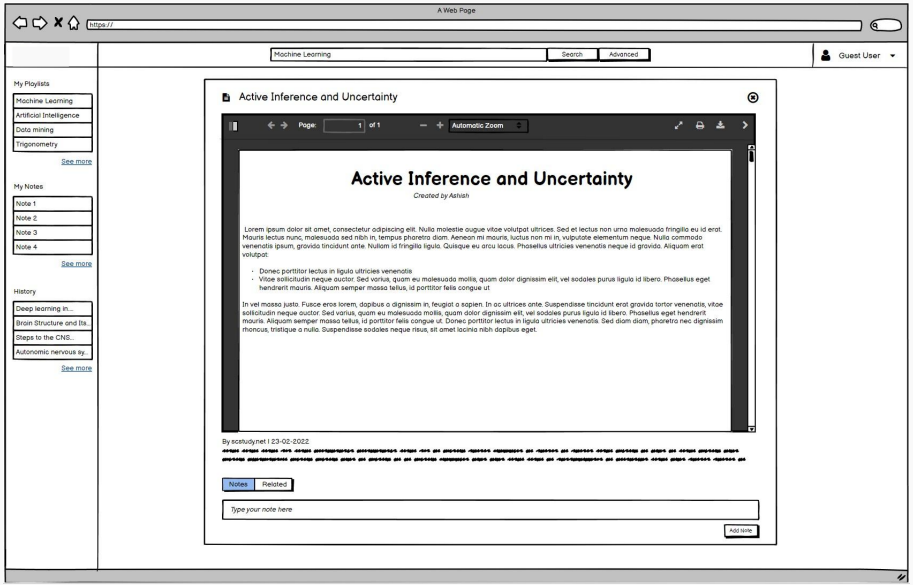


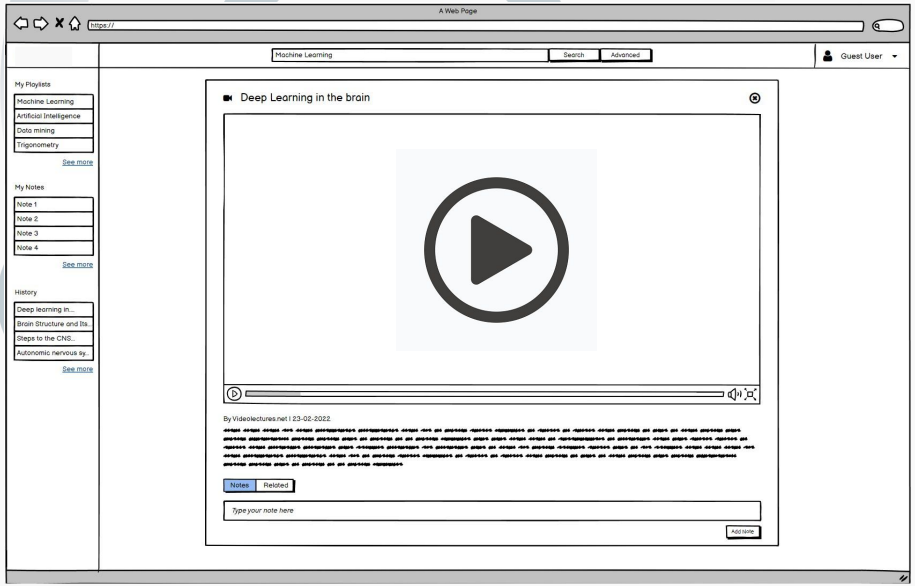
All OERs Under One Roof

- A centralised platform to search for and discover OERs
- Provide metadata and also other services that will enable users to use OERs
  - Create collections to share
  - Take notes and make annotations



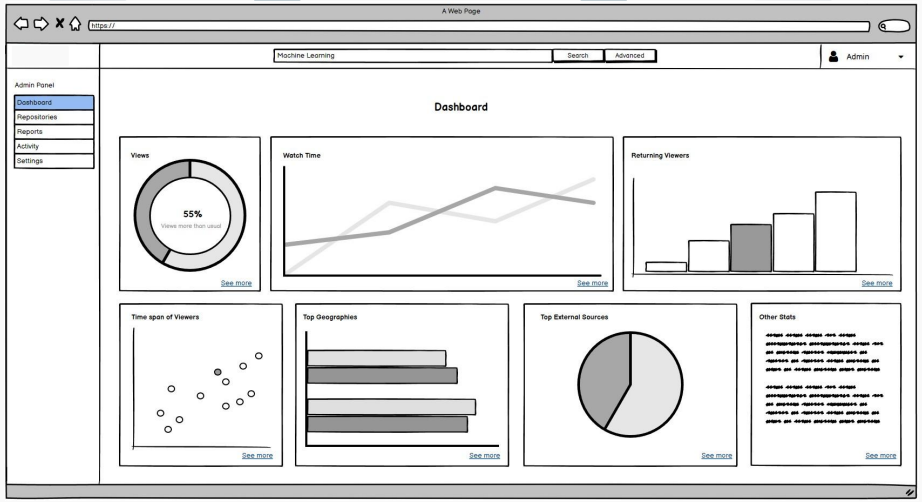
All OERs Under One Roof



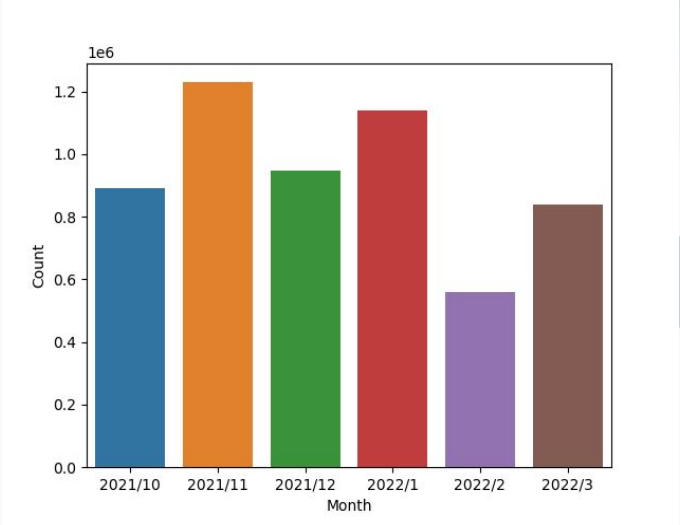


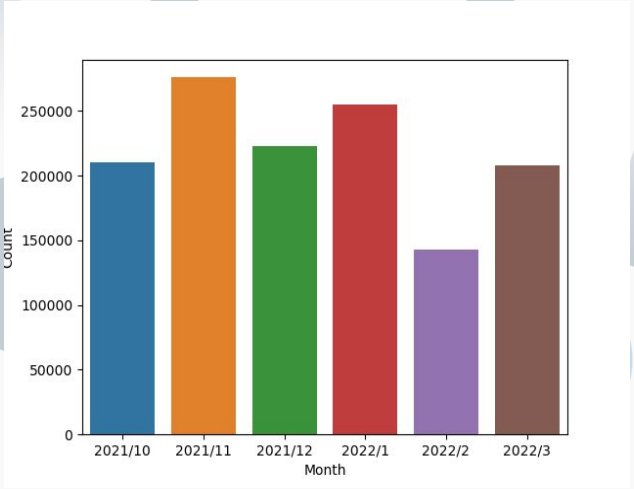
For Administrators

- Need to understand the audience and traffic patterns
- Intelligent Insights lead to better
  - Content Management
  - Relationships
  - Funding ...

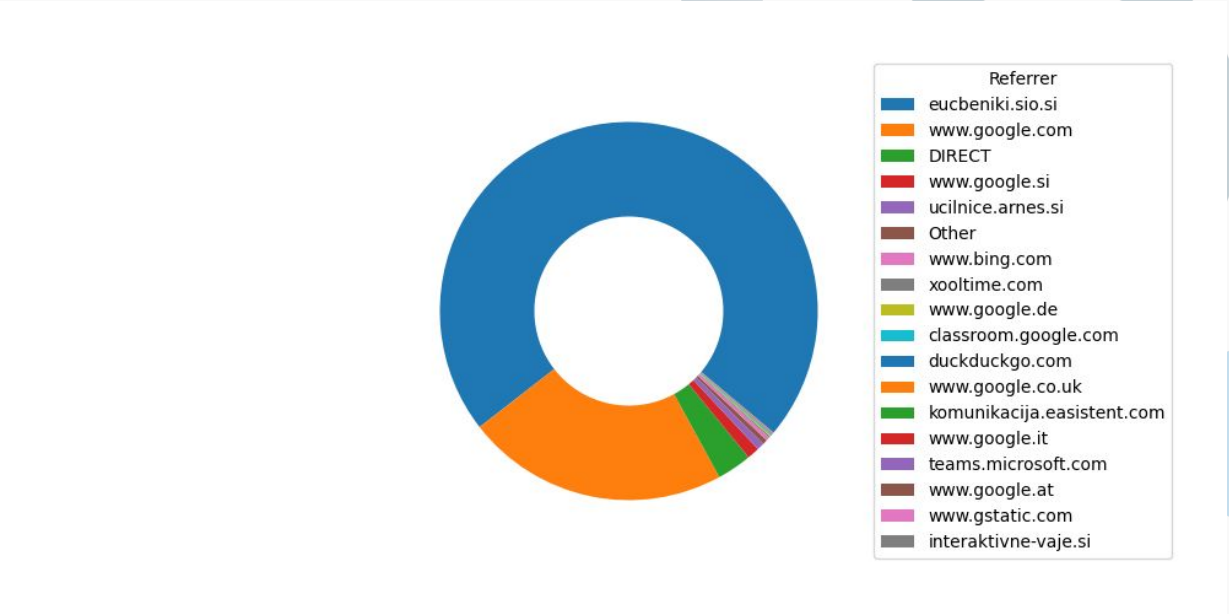


For Administrators: Examples from X5GON

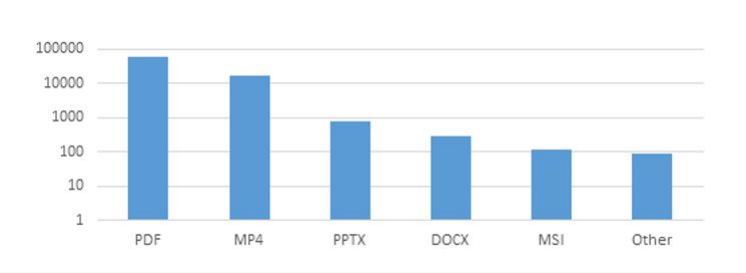




For Administrators: Inward Traffic



For Administrators: Cross-site Insight



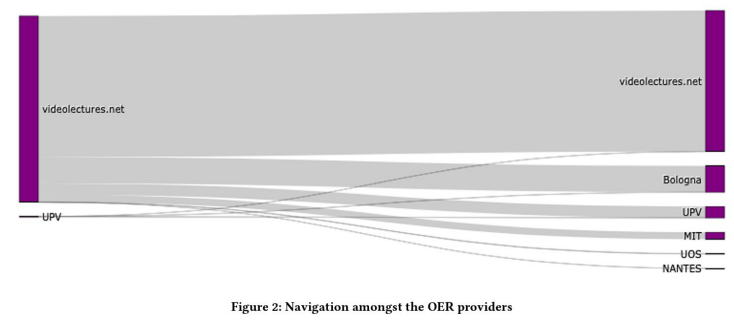
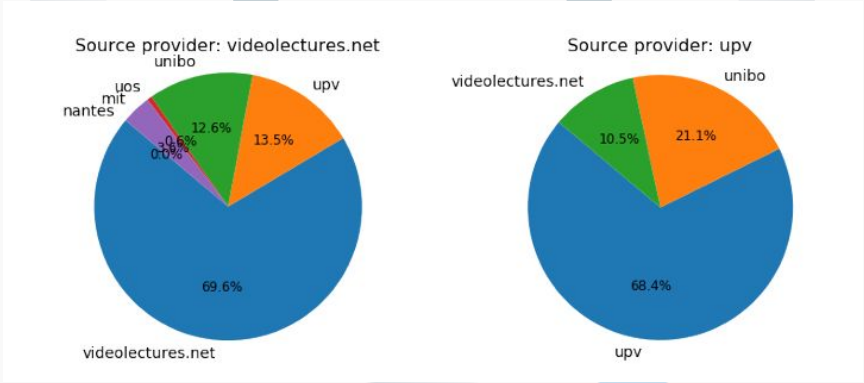


Figure 2: Navigation amongst the OER providers



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Emerging OER technology trends

Alan Masson, Instructure

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Feedback from Innovation Circle meeting

End user experience noted as a key barrier to adoption of OERs

- Lack of confidence in understanding open licensing models
- Users require a simplified sharing experience
- Users want to find relevant resources easier and with greater accuracy

Key Technology Opportunities (from Technology position paper)

- the potential application of Artificial Intelligence (AI) in the field of OERs,
- the potential of existing content creation frameworks such as H5P (Joubel) and OER integration frameworks such as X5Gon,
- new user interface design paradigms (UX) for OER repositories to ensure maximum effectiveness, ease of use, and simplicity in resource discovery, uploading, previewing, organising, implementing technologies behind OER including platforms, operating systems, browsers, file managers, and other software applications.

Key enabling technology trends?

Follows some examples from perspective of the project team experiences

Please add relevant examples from your own experience and perspective to the chat

Trend 1: CX and UX improvements

Project partner examples

Joubel (H5P) - easy creation of rich learning content and activities that can be simply shared and re-used

Instructure (Canvas) – LMS that facilitates flexible content and course sharing / delivery

- Make it easier for users to create and share content and courses
- Engaging and intuitive workflows and features
- Address key user tasks and objectives
- Scaffold users to provide essential metadata and use appropriate CC licenses

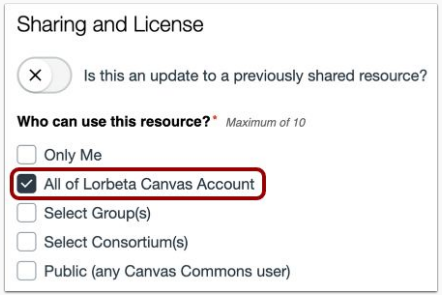
Facilitating a culture of sharing (Canvas example)

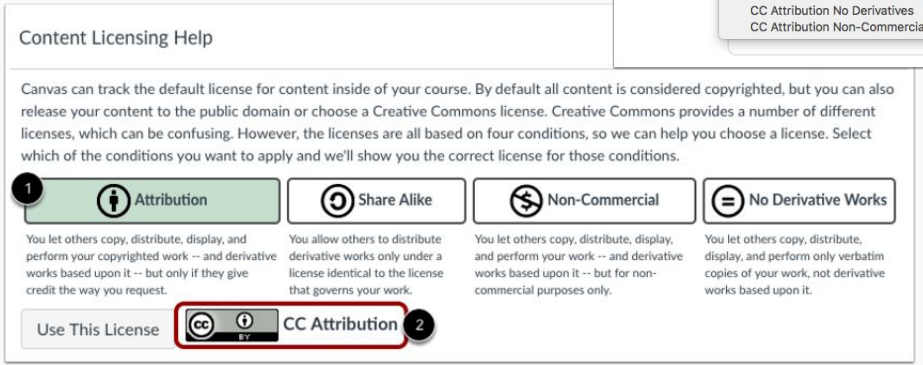
Granular sharing levels

- Encourage culture of sharing
- Multi org consortia
  - Drive sharing of content
  - Build pipeline for open courses

Guided approach to licensing

- Options built into workflow
- In contextual guidance





Trend 2: Extending application of existing resources to wider contexts

Course / Content providers:

- Auto translation / transcription of resources and courses into additional languages
    - Text content
    - Video content
- Auto conversion of content into additional formats to support a range of accessibility and user preference needs

End users:

- Leverage similar features using tools like MS Immersive Reader

Trend 3: Machine learning to simplify the complexity of the ecosystem and improve user discoverability

Example - X5Gon (https://www.x5gon.org/)

Focus on use of AI and Machine Learning to:

- Curate relevant and contextual content to inform user discovery
- Personalize recommendations for learning content to suit users' needs, based on the analysis of relevant factors
- Outputs include AI discovery, recommend and translation services

Trend 4: Micro-credentials

Super hot topic across education – can provide a recognition of learning layer to OERs

Additional benefits:

- Provides an opportunity for better data tagging and utilisation tracking of OERs and their impact thu awarded credential metadata
- Awarded credentials provide users with skills and other key data to help them to construct their own personal learning pathways using OERs and other learning sources

Trend 4: Micro-credentials enabling technologies

Example: Credentify (https://credentify.eu/)

API service that enables organisations and students to issue and receive micro-credentials in a stackable and verified way

- Blockchain to facilitate scaleable verification
- Established a meta-data standard for micro-credentials to facilitate interoperability across multiple systems and services (incl OERs)

Emerging need:

Machine Learning solutions to recommend relevant credentials to OERs

Reminder - post your examples and suggestions in the chat so we can capture them

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