



PHOTODENTRO SAAS: SOWING THE SEEDS FOR AN ECOSYSTEM OF “PHOTODENTRO” OPEN EDUCATIONAL RESOURCE REPOSITORIES

Anastasios Koutoumanos, Elina Megalou,
Nikos Palavitsinis, Christos Kaklamanis



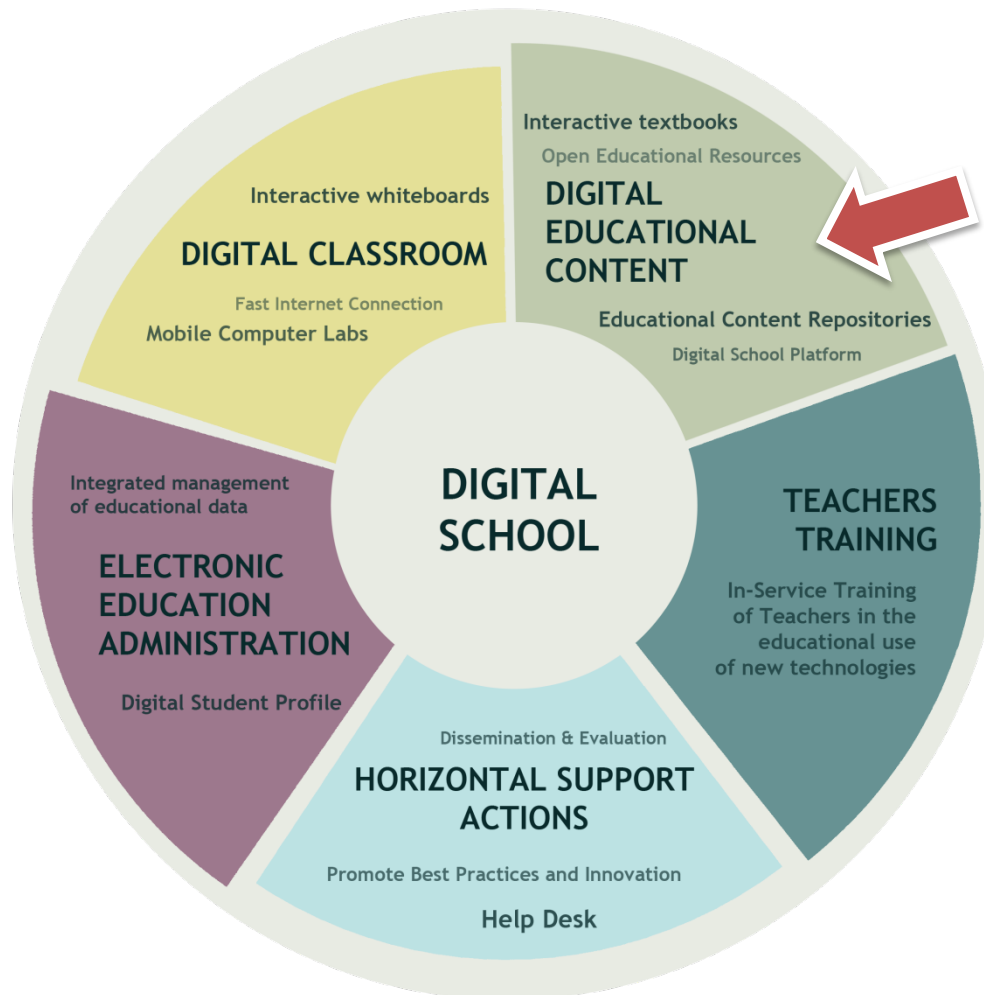
Computer Technology Institute & Press “DIOPHANTUS” (CTI) – Greece
Hellenic Ministry of Education

Dr Elina Megalou
Deputy Director of the
Strategy & Digital Educational Content Dept. @CTI



9th annual International
Conference of Education, Research
and Innovation
Seville, 14 – 16 November, 2016

The context: Digital School

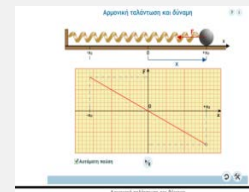


**Digital School Platform,
Interactive Books,
and Learning Object Repositories**

Digital School Content-based e-Services

<http://dschool.edu.gr>

Open Educational Resources (OERs)



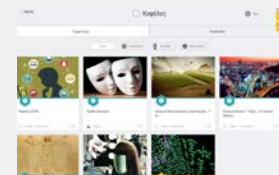
ebooks.edu.gr

Interactive Textbooks



eme.edu.gr

e-me Digital Educational Platform for pupils and teachers



photodentro.edu.gr

Photodentro Digital OER Repositories





Photodentro OER Repositories

ΦΩΤΟΔΕΝΤΡΟ - ΕΘΝΙΚΟΣ ΣΥΓΣΩΡΕΥΤΗΣ ΕΚΠΑΙΔΕΥΤΙΚΟΥ ΠΕΡΙΕΧΟΜΕΝΟΥ



ΦΩΤΟΔΕΝΤΡΟ > ΜΑΘΗΣΙΑΚΑ ΑΝΤΙΚΕΙΜΕΝΑ



ΦΩΤΟΔΕΝΤΡΟ > ΕΚΠΑΙΔΕΥΤΙΚΑ ΒΙΝΤΕΟ



ΦΩΤΟΔΕΝΤΡΟ > ΕΚΠΑΙΔΕΥΤΙΚΟ ΛΟΓΙΣΜΙΚΟ



ΦΩΤΟΔΕΝΤΡΟ > Ε-ΥΛΙΚΟ ΧΡΗΣΤΩΝ



ΦΩΤΟΔΕΝΤΡΟ > ΑΝΟΙΧΤΕΣ ΕΚΠΑΙΔΕΥΤΙΚΕΣ ΠΡΑΚΤΙΚΕΣ



ΦΩΤΟΔΕΝΤΡΟ > ΕΞΩΤΕΡΙΚΕΣ ΠΗΓΕΣ



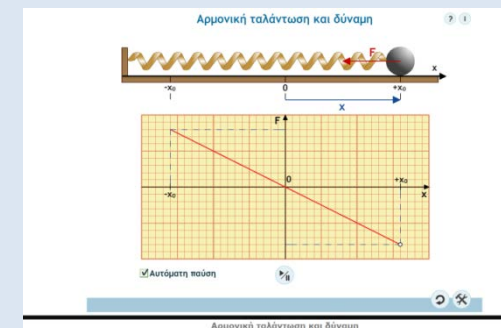


<http://photodentro.edu.gr/lor>

Nov 2016: ~8,400 Learning Objects

Learning Objects

Small, reusable units of learning
Semantically autonomous
Open Licenses (CC BY NC SA)





Photodentro Video

Photodentro Video
EDUCATIONAL VIDEO

Help Contact

Search

Browse

Photodentro/Educational Video is the Greek Educational Video Repository for primary and secondary education. It has been designed and developed by CTI Diophantos in the framework of "Digital School" in order to host collections of curriculum related short-length videos that can be used in the learning process. It is open to all, students, teachers, parents, as well as anybody else interested. The Photodentro/Educational Video Repository is one of the Educational Content Repositories of the Photodentro group.

Videos in the Photodentro/Educational Video Repository are:

- Short length (up to 10 min).
- Curriculum-related, that can be used in primary and secondary education
- Appropriate for in-class use, within learning activities
- Core-concept clips

More Info

Photodentro Video v2.0 | powered by DSpace open source repository software

CTI Diophantos
European Union
OPERATIONAL PROGRAMME
EDUCATION AND CULTURE
NSRF
Digital School
ΕΛΛΗΝΙΚΗ ΔΗΜΟΚΡΑΤΙΑ
Υπουργείο Παιδείας
Ερευνας και Θρησκευμάτων

<http://photodentro.edu.gr/video>

Nov 2016: ~ 1000 video

Educational Video

Short length (<10min)

Curriculum related

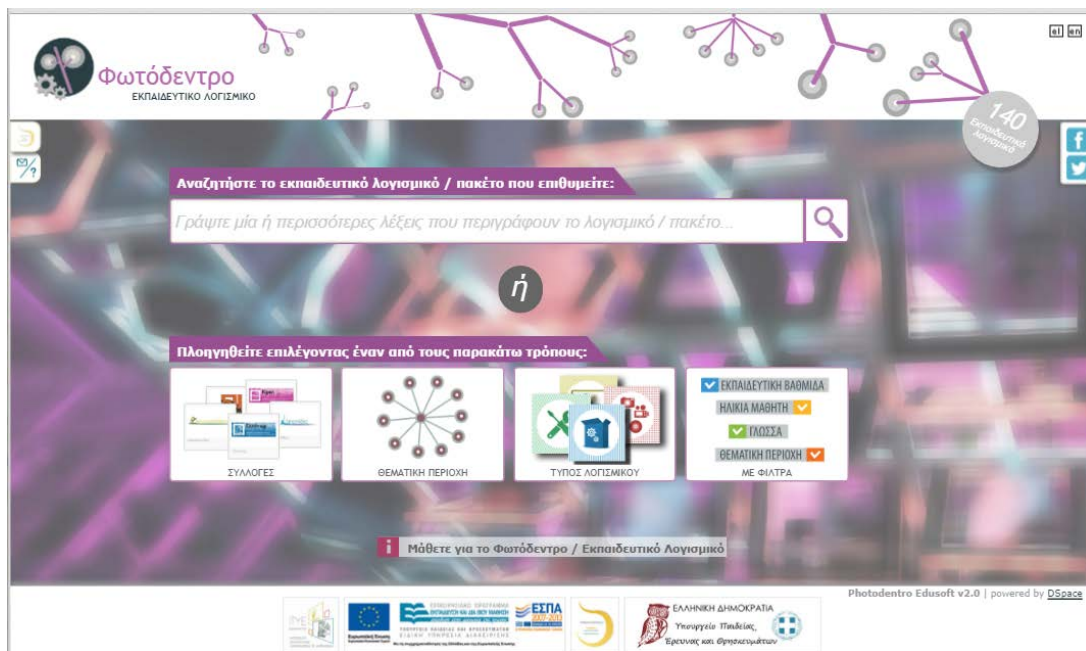
Core-concept, suitable for in class use

Open Licenses (CC BY NC SA)





Photodentro EDUSOFT
EDUCATIONAL SOFTWARE



<http://photodentro.edu.gr/edusoft>

June 2016: 140 educational software

Educational Software (for download)



Educational
multimedia titles



Sets of learning scenarios



Educational Software Tools



Open learning environments



No prior evaluation of resources
Teachers have Public Profile



<http://photodentro.edu.gr/oep>

Open Educational Practices

Reusable teaching practices on resource-based learning

OEPs

- draw upon the use, reuse, or creation of OERs
- have been implemented in a real educational setting
- their creators openly share results, experiences & reflections





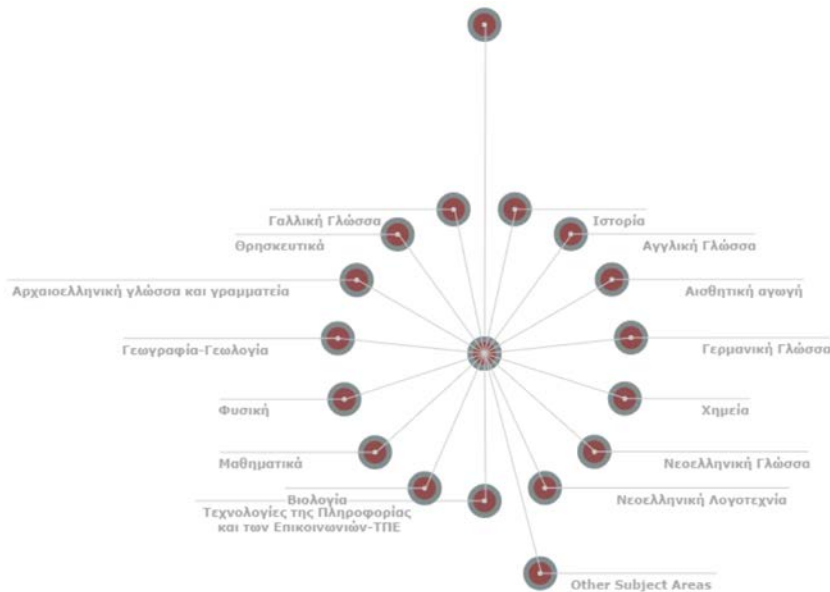
Photodentro Browsing & Searching

Search for a learning object:



Search
Photodentro

Browsing by Subject



Browsing by Learning Resource Type



Using Filters

Search within results

Filters

☐ Δυνατότητα άμεσης λειτουργίας

Όλες οι περιπτώσεις

☐ Educational Context

☐ Student Age

☐ Learning Resource Type

☐ Quality certifiers

☐ Funding

☐ Language

☐ Foreign Language Competences

☐ Special Needs

☐ Teaching Approach

☐ Educational Objective

☐ Subject Areas



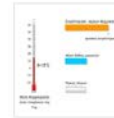
Photodentro Semantic Interoperability

PHOTODENTRO LOM-GR APPLICATION PROFILE



LEARNING OBJECT

ΦΑΙΝΟΜΕΝΟ ΤΟΥ ΘΕΡΜΟΚΗΠΙΟΥ ΚΑΙ ΕΠΙΠΤΩΣΕΙΣ



GENERAL INFORMATION

TITLE
Φαινόμενο του θερμοκηπίου και επιπτώσεις

DESCRIPTION
Παρά προσομοίωση ενός μοντέλου της ποσοτικής αύξησης της συγκέντρωσης των αερίων του θερμοκηπίου με τη μέση θερμοκρασία της Γης και με τη στάθμη των θαλασσών και τον όγκο των αρκτικών πάγων. Ο χρήστης μπορεί να μεταβάλλει τη συγκέντρωση των αερίων και να διαπιστώσει πώς αυτή επηρεάζει μέση θερμοκρασία της Γης, τη στάθμη των θαλασσών και τον όγκο των αρκτικών πάγων.

EDUCATIONAL DESCRIPTION
Η δυνατότητα για «μεταφορά» στο χρόνο παρέχει στον/στην εκπαιδευτικό το κατάλληλο επίπεδο υποστήριξης («εναλλαγή», ζώνη επικείμενης ανάπτυξης) για κάθε μαθητή και ευκαιρία για ανακάλυψη. Η πρόταση μπορεί να υλοποιηθεί αξιοποιώντας και την ομαδοσυλλογική τεχνική, με την παρουσίαση της αναπαράστασης στον πίνακα μέγιστο πρόβλημα. Εναλλακτικά, οι μαθητές μπορούν να εργαστούν σε ομάδες, με έναν υπολογιστή ανά ομάδα.

REFERENCE URL
<http://photodentro.edu.gr/lor/ri/8521/6206>

RESOURCE URL
<http://photodentro.edu.gr/v/items/id/8521/6206>

KEYWORDS

φαινόμενο του θερμοκηπίου
αέρια του θερμοκηπίου
μέση θερμοκρασία της Γης
στάθμη των θαλασσών
όγκος αρκτικών πάγων
επιπτώσεις

LEARNER CHARACTERISTICS

EDUCATIONAL CONTEXT
lower secondary, higher secondary

TYPICAL AGE RANGE
12-15, 15-18

CLASSIFICATION

SUBJECT AREAS
Φυσική (φαινόμενο του θερμοκηπίου)

LEARNING RESOURCE TYPE
simulation

APPEARS IN COLLECTIONS
Φυσική Γυμνασίου

TECHNICAL INFORMATION

FORMAT
application/x-shockwave-flash (96 KB)

TECHNICAL REQUIREMENTS
plug-in : Adobe Flash Player (minimum version 10.2)

CONTRIBUTION & FUNDING

CONTRIBUTION
Στασινός Ηλίας (author), Βαγγέλης Κολτσόκης (editor), ΝΙΚΗΦΟΡΟΣ ΠΑΠΑΧΡΗΣΤΟΣ (μεταφραστικός)
Αναστάσιος Μικρόπουλος (team coordinator)

FUNDING
DIGITAL SCHOOL (2010-2015, OP "Education and Lifelong Learning", Hellenic NSRF)

ADDITIONAL INFORMATION

GENERAL LANGUAGE
greek

IDENTIFIER

PHOTODENTRO
8521/6206

QUALITY CERTIFIERS



LICENSE



Creative Commons Attribution-NonCommercial-ShareAlike 3.0

Το παρόν εκπαιδευτικό υλικό παράγεται με ίδιον Creative Commons Attribution-NonCommercial-ShareAlike 3.0 License.



Photodentro Technical Implementation



**Based on DSpace open source
Repository Management system**

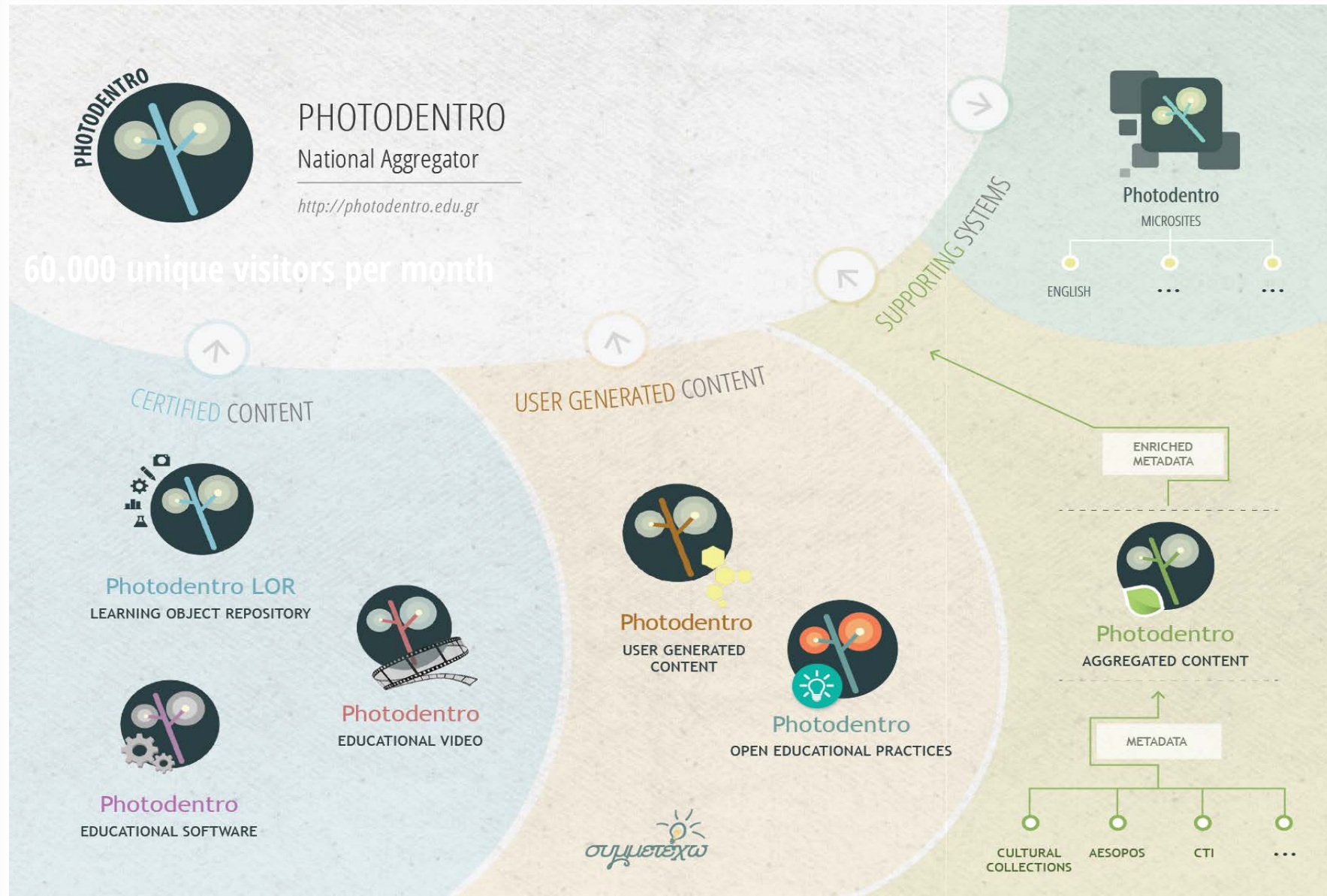


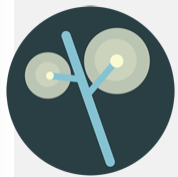
Apache Tomcat



**It provides an Open Archives Initiative Protocol for
Metadata Harvesting (OAI-PMH) target**

Photodentro Repository Infrastructure





Photodentro Greek national Aggregator of Educational Content

Photodentro portal

ΦΩΤΟΔΕΝΤΡΟ - ΕΘΝΙΚΟΣ ΣΥΓΓΡΕΥΤΗΣ ΕΚΠΑΙΔΕΥΤΙΚΟΥ ΠΕΡΙΕΧΟΜΕΝΟΥ

18,087 Ανακαλύψτε

Γράψτε μία ή περισσότερες λέξεις για να αναζητήσετε εκπαιδευτικό περιεχόμενο

Αναζήτηση

Και σε Υλικό Χρήστων

ΝΑΙ Μόνο σε Αποθήκη «Φωτοδέντρο» ΟΧΙ

ΕΠΙΛΕΓΜΕΝΑ

ΓΕΩΓΡΑΦΙΑ - ΓΕΩΛΟΓΙΑ

ΒΙΟΛΟΓΙΑ

ΑΤΤΙΛΗ ΕΠΙΣΤΑΣΕΩΣ

ΓΑΛΛΙΚΗ ΓΛΩΣΣΑ

ΦΥΣΙΚΗ

ΜΑΘΗΜΑΤΙΚΑ

ΠΕΡΙΒΑΛΛΟΝΤΙΚΗ ΕΚΠΑΙΔΕΥΣΗ

ΙΣΤΟΡΙΑ

ΤΙΤΕ

ΧΗΜΕΙΑ

ΦΥΣΙΚΟΜΑΘΗΜΑΤΙΚΑ

ΑΔΙΟΧΗΤΙΚΗ ΑΓΩΓΗ

ΕΠΙΛΕΓΜΕΝΑ

ΤΥΠΟΣ ΜΑΘΗΣΙΑΚΟΥ ΑΝΤΙΚΕΙΜΕΝΟΥ

ΘΕΜΑΤΙΚΗ ΠΕΡΙΟΧΗ

ΠΑΙΔΑΓΩΓΙΚΗ ΑΞΙΟΠΟΙΗΣΗ ΒΙΝΤΕΟ

ΜΕΤΑΒΑΣΗ ΣΤΑ ΑΔΙΟΧΗΤΙΚΑ

ΦΩΤΟΔΕΝΤΡΟ ΜΑΘΗΣΙΑΚΑ ΑΝΤΙΚΕΙΜΕΝΑ

ΦΩΤΟΔΕΝΤΡΟ ΕΚΠΑΙΔΕΥΤΙΚΑ ΒΙΝΤΕΟ

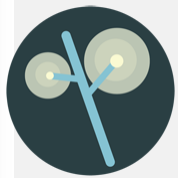
ΦΩΤΟΔΕΝΤΡΟ Ε-ΥΛΙΚΟ ΧΡΗΣΤΩΝ

ΦΩΤΟΔΕΝΤΡΟ - ΑΝΟΙΧΤΕΣ ΕΚΠΑΙΔΕΥΤΙΚΕΣ ΠΡΑΚΤΙΚΕΣ

ΦΩΤΟΔΕΝΤΡΟ ΕΚΠΑΙΔΕΥΤΙΚΟ ΛΟΓΙΣΜΙΚΟ

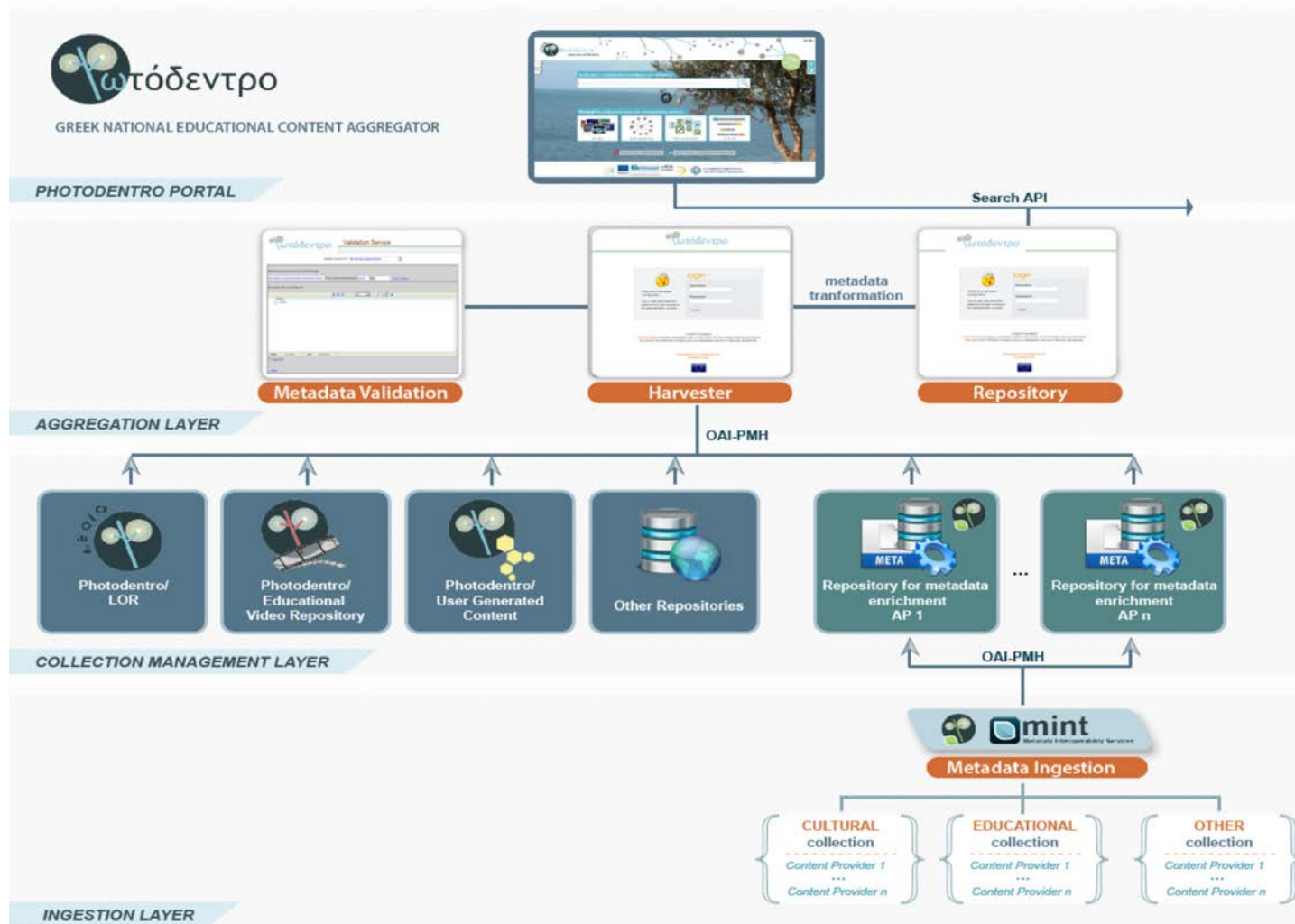
ΦΩΤΟΔΕΝΤΡΟ ΠΟΝΤΕΜΟΣ

<http://photodentro.edu.gr>

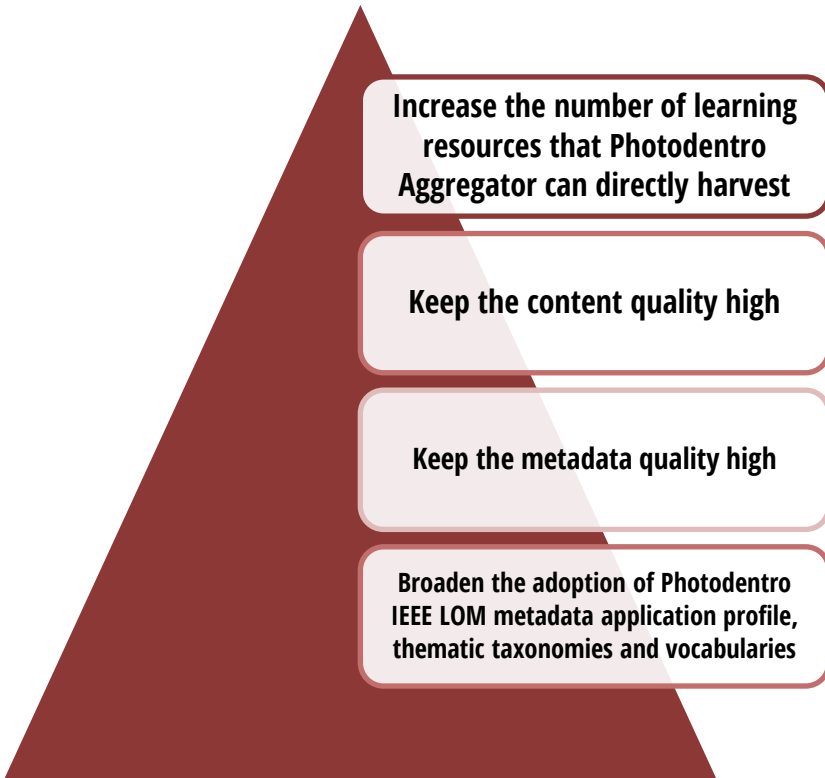


Photodentro Greek national Aggregator of Educational Content

Photodentro Layered Architecture



Goals



Increase the number of learning resources that Photodentro Aggregator can directly harvest

Keep the content quality high

Keep the metadata quality high

Broaden the adoption of Photodentro IEEE LOM metadata application profile, thematic taxonomies and vocabularies

Educational Organizations & Institutions



are in need of repository infrastructures that allow them to share educational content

limited or no resources to support such software projects in-house

Goals & Needs

Photodentro Software as a Service (SaaS)



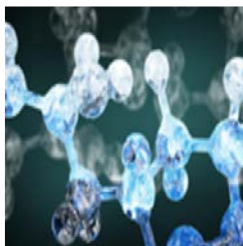
PROPOSED APPROACH

Software as a Service (SaaS) is a software delivery model that provides access to software and its functions remotely, usually as a Web service

Software: centrally hosted and managed by the SaaS provider
Subscribers access the same code base
Data and any customisation: kept separate

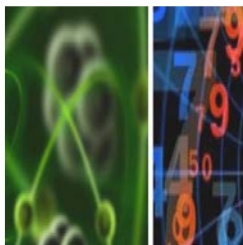
THE SOFTWARE AS A SERVICE (SAAS) MODEL

CASE 1: Hosting single OERs



Need to publish / host a single OER on a Photodentro Repository

Example OER: An educational resource developed in the context of an EU project

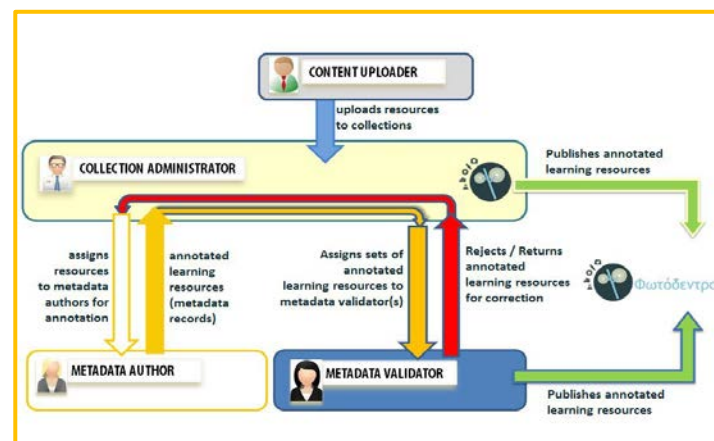


Why: Take advantage of the large number of Photodentro users (schools, teachers, pupils)

Photodentro software is already there - No customisation options



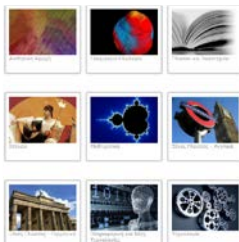
Service:
Well-defined authorisation & QA policy
Workflow process



Quality Seals



CASE 2: Hosting OER collections



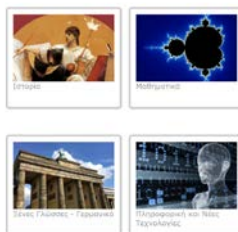
Need to publish / host a whole collection of OERs

Example : Deykalion collection of 100 OERs for physical phenomena by Ioannina Univ.



Requirement: Experience in LOM-based metadata authoring

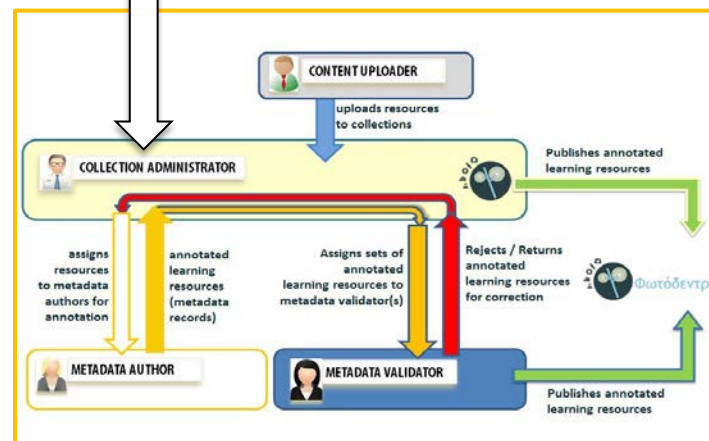
Limited customisation options (logos, quality seals, thumbs)



Service:

Create a new collection in an existing Photodentro repository

Give content provider full control to manage its own collection (collection administrator role)



Provide training & consulting in the metadata authoring process

CASE 3: A Custom OER Repository (Hosted deployment approach)



Need to clone & customise an existing Photodentro repository

Why: to support a certain type of learning resources or to fulfil a specific need



Example: A Photodentro clone for the Pedagogical Institute of Cyprus

Customization Level:
vary from very small changes
to full customisation



Service:

- Analyze user demands
- Clone a Photodentro Repository
- Customize it to meet the needs of the organization
- Provide training, consulting and technical support

A typical hosted solution:
an individual copy of an application is deployed as a single installation per client



CASE 4: My “Photodentro Repository”



Click-and-clone: Create “my own copy “of Photodentro Repository “on the fly”

Service:

Typical Software as a Service model (SaaS model)

Who: schools, small organisations, educational departments in larger organisations, ...

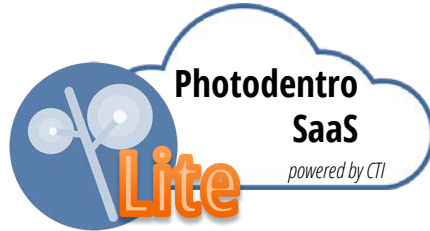


Why: uploading and publishing their OERs without bothering with technical details

Light customisation of the GUI is in most cases enough



Photodentro SaaS Levels



Light customisation options

(e.g. changes to the logo and key labels, choosing existing themes for the graphical user interface)



Basic customisation options

(e.g. designing new specialised control vocabularies and custom metadata forms, additional customisation of the frontend)

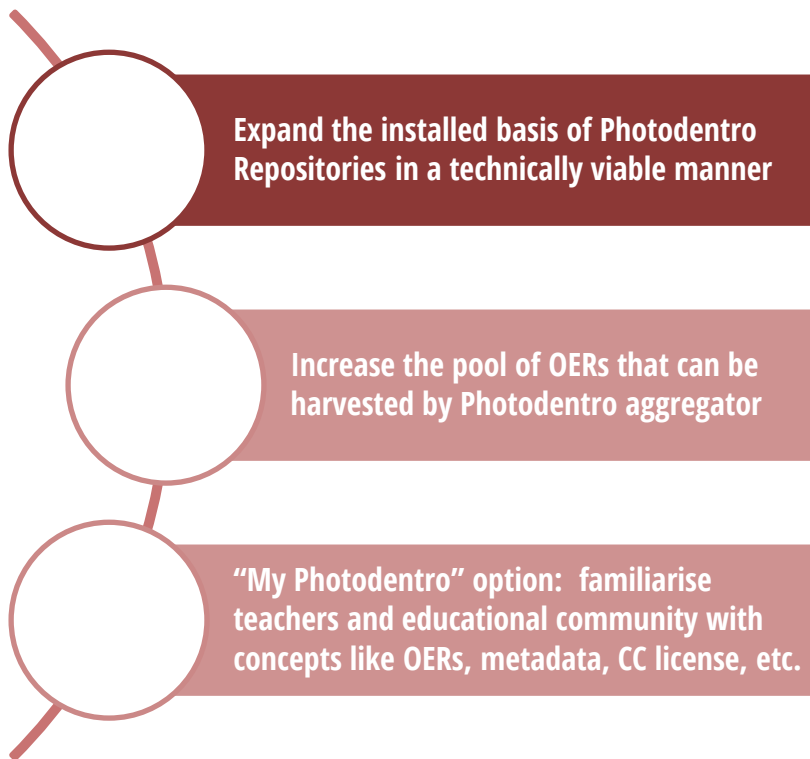


Full customisation options

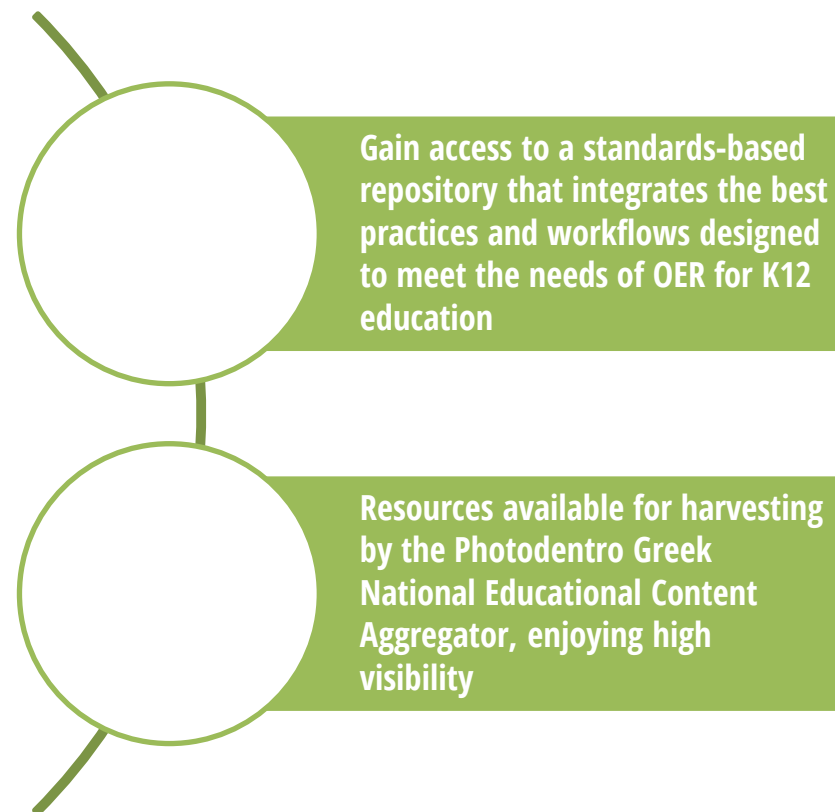
Targeted for very large repositories

Ability to move the Photodentro SaaS instance to non-shared infrastructure

For Photodentro SaaS provider



For Photodentro SaaS users



Results & Benefits of the Photodentro SaaS approach

A word cloud featuring the word "THANK YOU" in large, bold, black capital letters. Surrounding it are numerous other words in various sizes and orientations, representing different languages and expressions of gratitude. The words include: DANKSCHEEN, SHUKRIA, BIYAN, TINGKI, YAQHANYELAY, TASHAKKUR ATU, SUKSAMA, EKHMET, GRACIAS, ARIGATO, SHUKURIA, GOZAIMASHITA, EFCHARISTO, AGUYJE, FAKAAUE, KOMAPSUMNIDA, MAKE, GRAZIE, MEHRBANI, PALDIES, BOLZIN, MERCI, MIMMONCHAR, MAKETAI, SIKOMO, EKOJU, HATUR, UNALCHEESH, DENKAUJA, SPASIBO, MERISI, HENACHALHYA, ATTO, DHAANYABAD, ANHUA, WADEEJA, MAITEKA, HUI, YUSPAGADATAM, CHALTU, NURUN, SNACHALHYA, SPASSIBO, TAVTAPUCH, MEDAHAGSE, BAKKA, JUSPAXAR, MERASTAWHY, GAEJTHO, LAH, and MINMONCHAR.



Contact Details:

Dr Elina Megalou

**Deputy Director of the Strategy and Digital Educational Content Directorate
Computer Technology Institute and Press "DIOPHANTUS" (CTI)**

26-28 Mitropoleos Str. GR-10563 Athens, Greece

T: +30 210 3350744, M: +30 6932457270

e-mail: megalou@cti.gr

skype: elina.megalou

