Up2U

Techno-pedagogical aspects of the Up2U learning ecosystem

Mary Grammatikou - NTUA - Netmode Lab.

TNC – Trondheim, June 2018

Up2U Objectives

The key Up2U objective is: **to bridge the gap between secondary schools and higher education and research by better integrating formal and informal learning scenarios and adapting both the technology and the methodology that students will most likely be facing in universities**

Objectives

1. To **assess** the **use** of **public and private cloud-based infrastructure** services

2. To **design and develop** a **scalable** and **flexible** integrated **"application toolbox"** on top of the abovementioned cloud-based service infrastructure

3. To **build** and **train** the **learning community** for the specific learning context

4. To **test** the infrastructure service components and the application toolbox through very **large-scale pilots**

5. To **define** an **effective sustainability** and **exploitation framework**

School vs. University

High School vs University

Your parents and teachers will remind you of your responsibilities and help you manage them

You must balance your responsibilities and **set your own priorities**

High School vs University

School days are Monday to Friday, 9am to 3pm (30 hours a week)

Class times vary throughout the day, and you usually spend 12–16 hours in class per week

High School vs University

Teachers approach you if they believe you are falling behind

If you need assistance, you should initiate contact with your lecturer or tutor

High School vs University

Teachers provide you with class notes or the reading material when you miss a class

Lecturers expect you to locate and catch up on any notes or information you missed when you miss a class

Up2U Consortium

18 partners
- Universities
- NRENs
- Infrastructure providers
- Commercials

12 countries
- EU
- Switzerland
- Israel
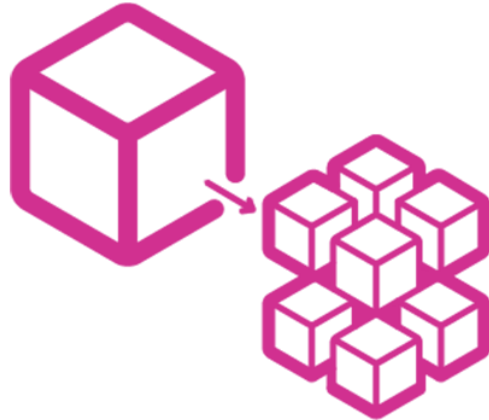
Containerized Education by the Up2U Consortium

Container schools

Microservices architecture
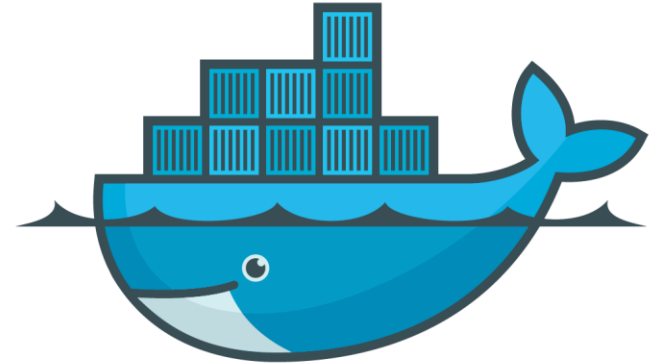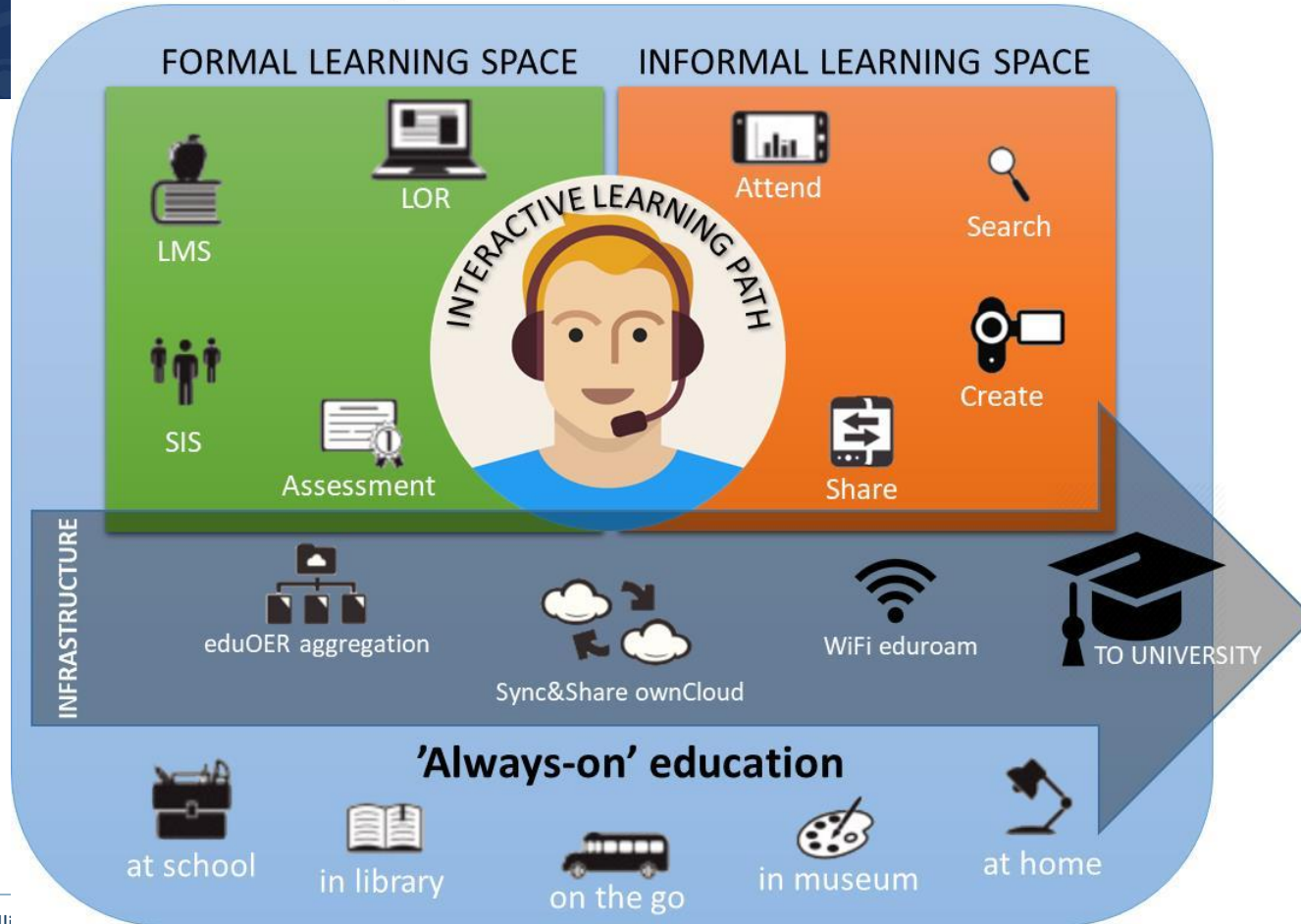
Modular deployment

docker

Next Generation Schooling

1. Personalized
2. Strong teacher support
3. Close community links
4. Broad and diverse curriculum
5. Outside and inside school involvement
6. Create the right conditions and children will learn!

Key stakeholders

Teachers

Have you noticed that keeping up the attention span of teenagers is getting more difficult? In a world where digital technology rules the world, why not benefit from it? Incorporating digital tools and services in your teaching method can result in more engaged students and helps them developing "critical thinking" and be more independent learners. Introducing value-added learning analytics and community-based digital reward system changes the learning scenario thus it becomes more adaptive to students liking.

- Local governaments
- Universities
- Education Ministries

- Commercials
- Service providers
- Publishers
- Policy makers
- …

High schools

UP2U project is building a community that can support the new trends and methods of digital teaching and learning. We provide tools and services that will help you implement digital learning scenarios in the classroom. A heterogeneous training plan is being elaborated that would be able to accommodate training teachers with different technology backgrounds. Pilot schools from various European countries will experiment with our concept and will share their lessons learned. Skills that can be acquired via these digital learning methods can drive up your enrolments with students ready for higher education.

Students

Our project helps you to adapt to new learning scenarios that will be useful when attending a university. Experimenting with the informal learning spaces and develop new skills that will be inevitable in higher education. UP2U promotes technology in the classroom – no more boring classes! Engage with your fellow peers, explore the international UP2U universe ecosystem and experience with the digital reward system. Say goodbye to the old chalkboard and enjoy the era of digital classes.

WORKFLOW

What's my objective?

- Try out new things
- Experiment with new methodology
- Know more about my students
- Improve certain skills
- Engage better
- Collaborate

How to get there?

- With the minimum efforts
- With the minimum disruption
- Self-motivated students
- Suitable tools
- Flexible frameworks

What's my impact?

- Do my class perform better
- Do i know what to change
- Where are my students compared
- Engagement levels
- Interaction level
- Succes

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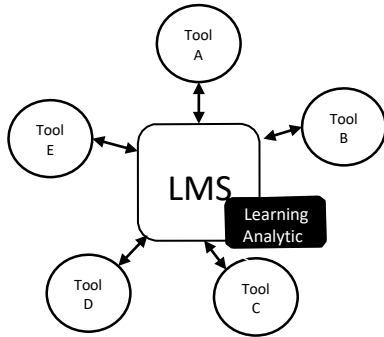- Engagement levels
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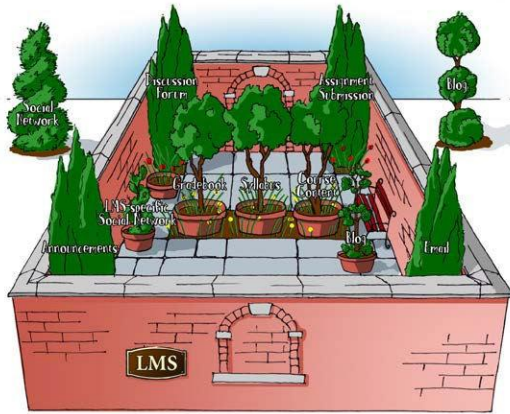
…to an Open Garden.

From a Walled Garden…

From LMS to NGDLE
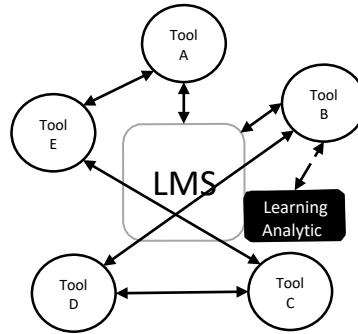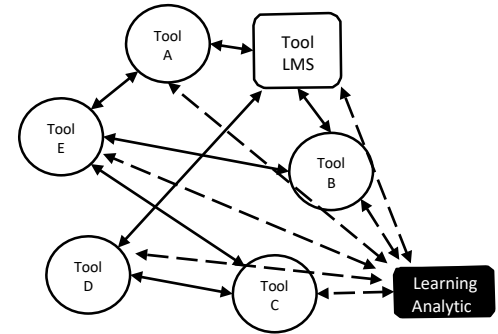
LMS-based architecture

Tools are integrated into the LMS via specific plug-ins or lately LTI. Learning Analytics is happening inside the LMS.

Transitional architecture

LTI becomes the predominant Learning Tool Integration method. More tools are interacting directly with each other. LA is getting information from connected tools.
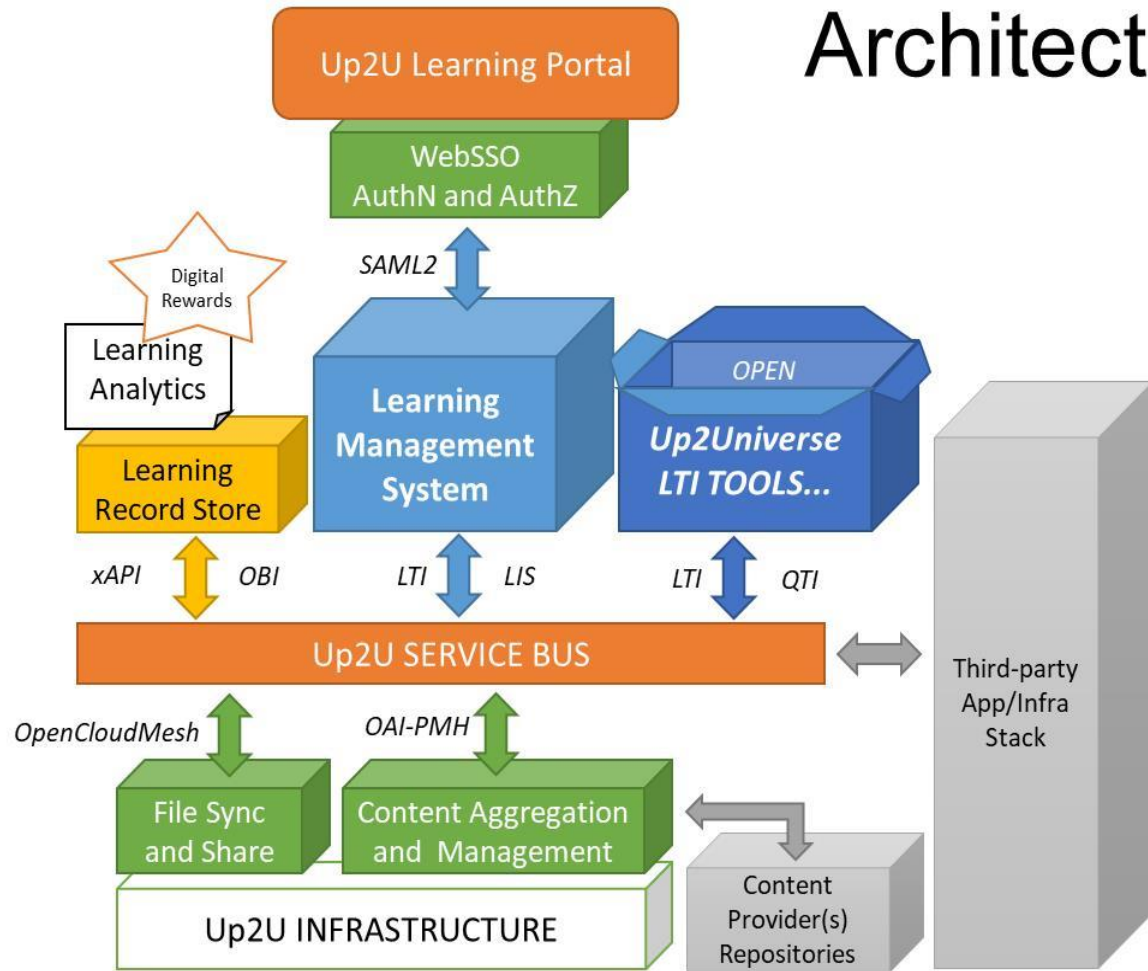
NGDLE architecture

Ecosystem of integrated, interoperable set of tools. LMS is not that important, if exists at all. Learning Analytics is an externalized function collecting all learning data from tools

Growing Digital Ecosystem
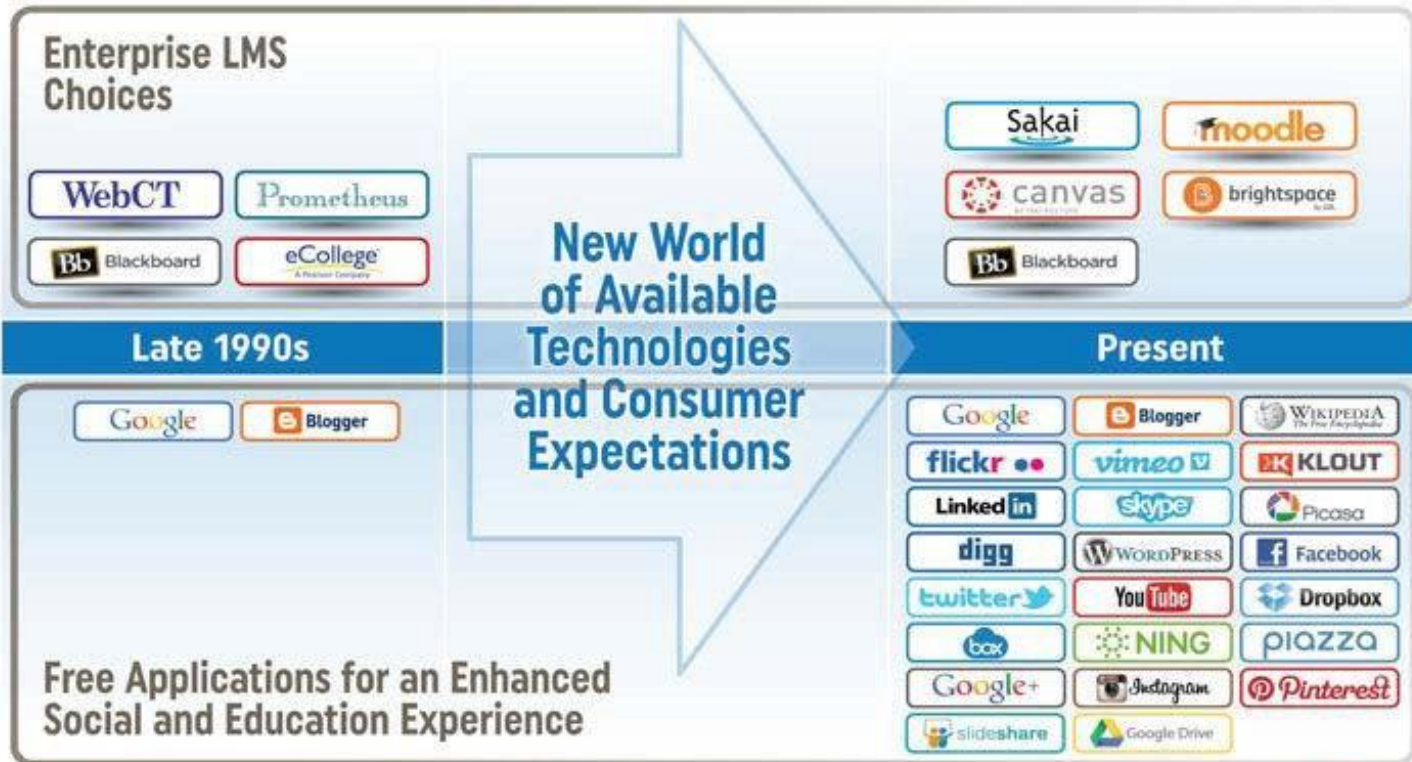
Architecture

- **Open Technology**
- **Standard APIs**
- **Value-add**
- **Scalable**
- **Modular**
- **Portable (Docker images)**
- **INTEROPERABILITY**

11

https://up2university.eu

Extended Learning Analytics and recognition system

Up2Universe® Toolbox

Up2U Service web front-end

State-of-the-art federated WebSSO & group management

LTI

Interactive notebooks with federated sharing by CERN

Open-source Learning Management System with LTI integration

Video Portal with LTI

European level OER metadata aggregation by GÉANT

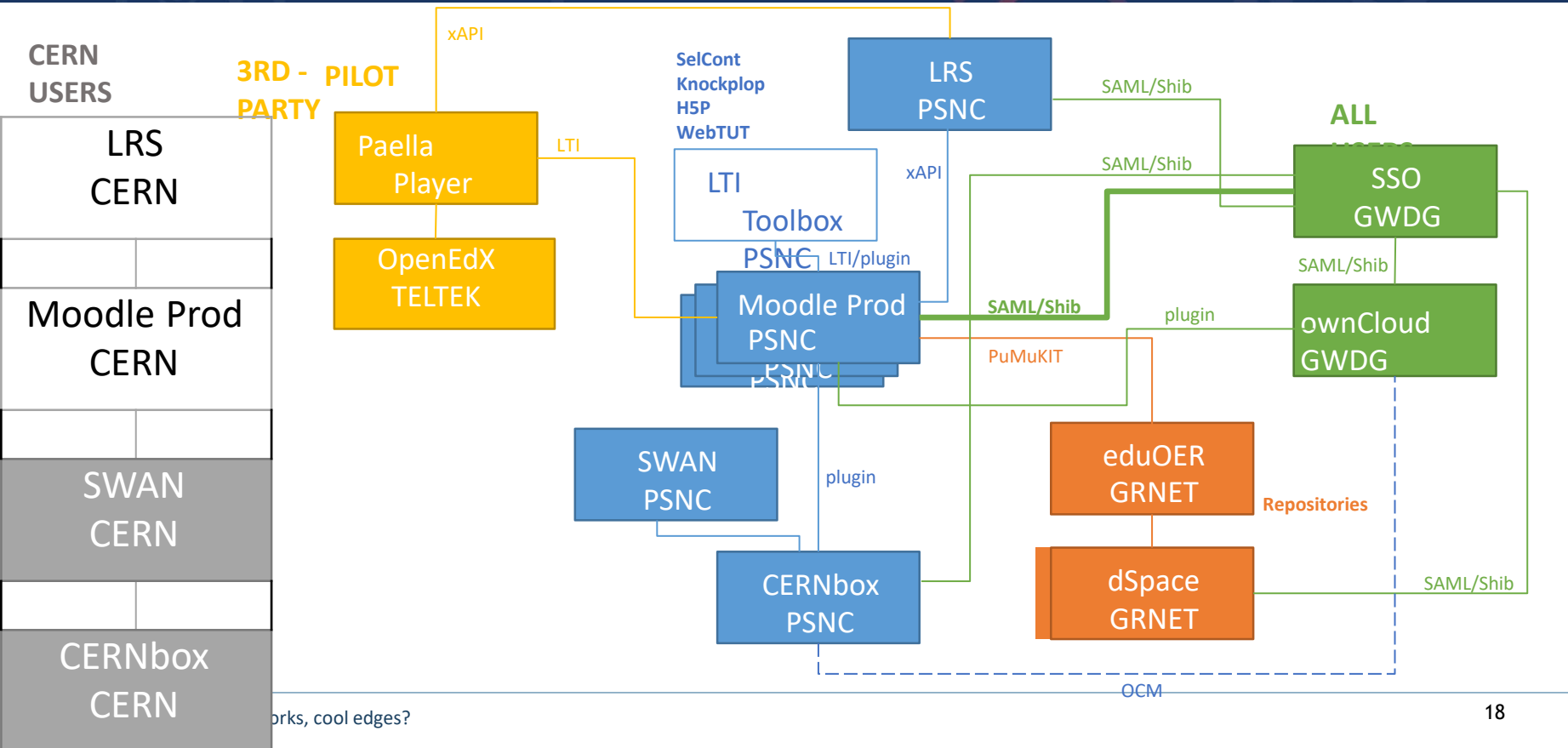Enterprise File Sync & Share solution with federated sharing across domains

Public and private content repositories...

Pan-European GÉANT network substrate: Content Distribution Network, WiFi access

Tools (Up2U ecosystem)

- **Moodle**: Learning Platform or Course Management System (CMS)
- **eduOER**: Open Educational Resource (OER) metadata aggregation hub and portal service
- **Up2U DSpace**: An open source digital archives system focused on long-term storage
- **SeLCont**: Synchronized e-Learning Content
- **CERNBOX**: The Sync and Share solution for Science
- **SWAN**: The Platform for Interactive Data Analysis in the Cloud
- **H5P**: Easy creation, sharing, and reuse of HTML5 content and applications
- **KnockPlop**: Simple and instant P2P Video Meetings
- **Personal Recorder**: Video Recorder
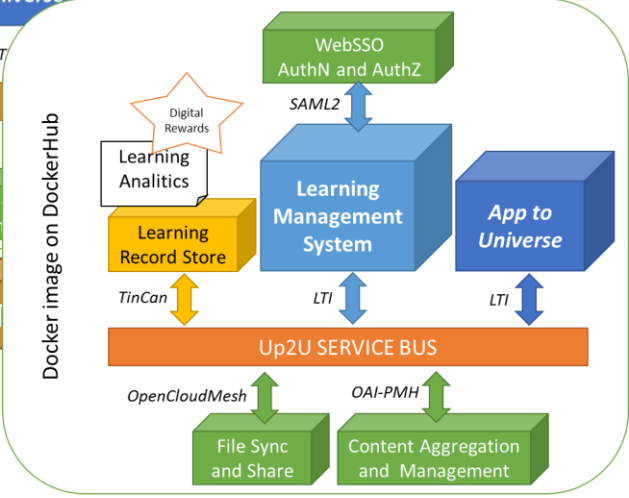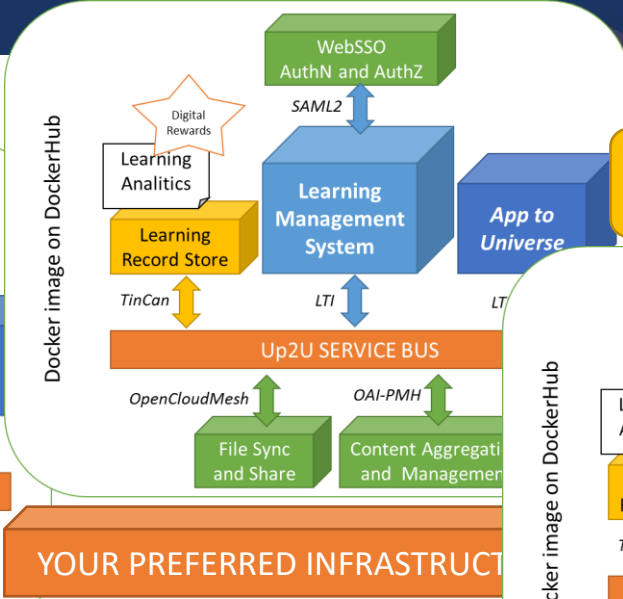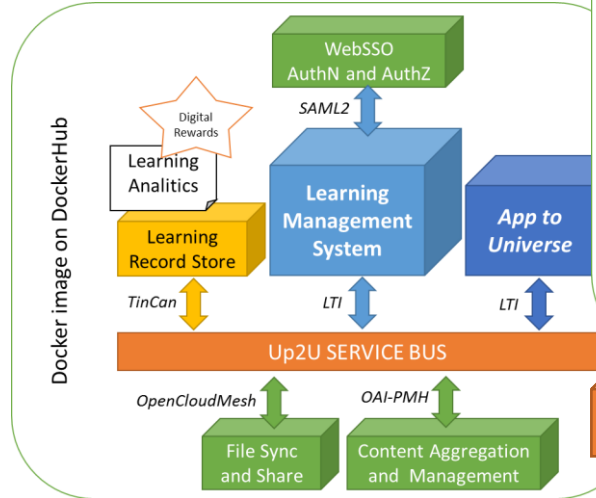
INTEROPERABILITY

- Rapid prototyping
  - Start with something existing quick
  - Consolidation functions
  - Develop what we need

- Build a platform (fit for purpose)
  - Mobile
  - HTML5
  - Cloud
  - Interoperability
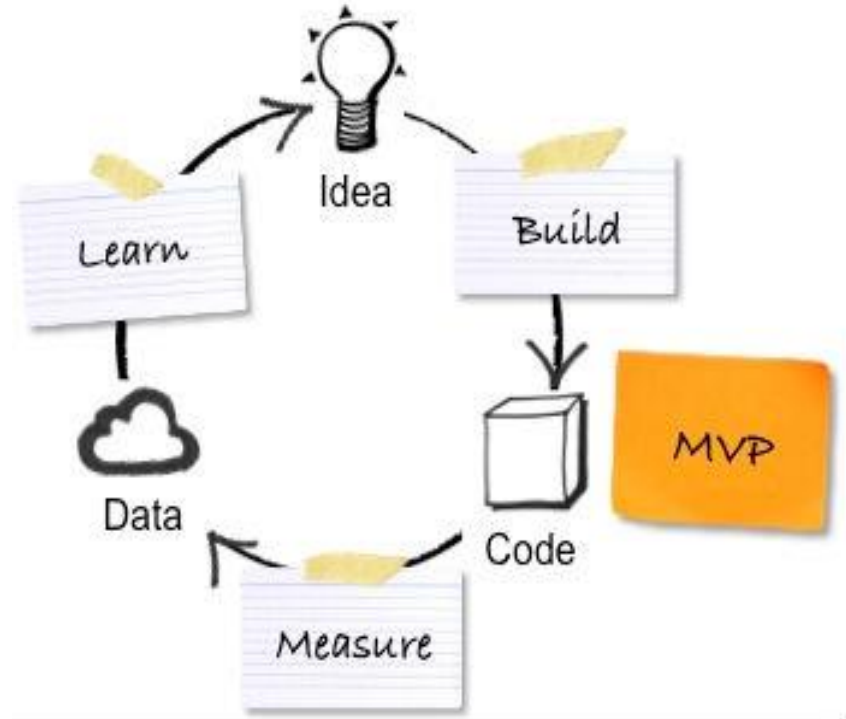
Pedagogy and Skills Survey

173 university teachers from 9 countries

281 school teachers from 8 countries incl. 33 school principals from 7 countries

Promoting Up2U skills
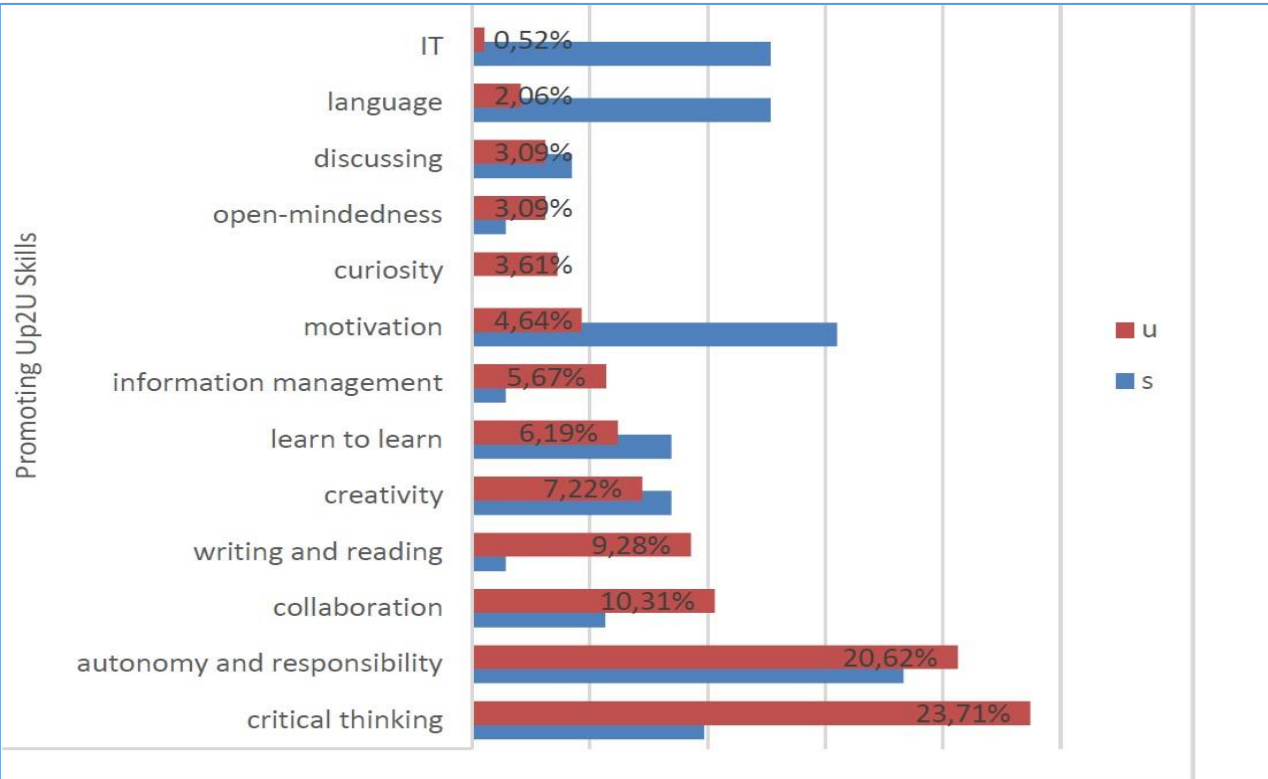
The necessary and effective skills for the academic learner, are:

- Critical Thinking & Problem Solving
- Communication & Collaboration
- Information, Media & Technology Literacy
- Self-Direction
- Learning to learn

By <u>using the appropriate teaching models, the learner may improve these skills and this process will even encourage the development of necessary digital competences</u> for better and successful functioning in the technological world of the 21st century

Up2U supports Modern Teaching Models and methodologies

- Project Based Learning (e.g. *Trello, wikis*)

- Place-Based Learning Education (e.g. *Treasure hunt*)

- Experiential Learning (e.g. *CernBox*)

- Flipped Classroom (e.g. *WebRTC, SeLCont, eduOER*)

- Scenario-based learning (e.g. *H5P*)

Table summarizes selected teaching models helping students to acquire the required skills from the academic learner in the 21st century

Teaching models	21st century skills for the academic learner	Technological solution	Technological tools
Project Based Learning (PBL)	• Critical Thinking & Problem Solving • Communication & Collaboration • Information, Media & Technology Literacy	• Mind maps • Project management • Content management system	• Wikis (core) • Trello (LTI) • Group assignment (core)
Flipped Classroom	• Self-Direction • Information, Media & Technology Literacy	• Interactive • Presentation	• WebRTC • SelCont • EduOER • H5P
Experiential Learning	• Critical Thinking & Problem Solving • Communication & Collaboration • Self-Direction	• Remote & online labs • Educational Games • Simulation • Reflection	• EJS Remote LABs • H5P • CERNbox/SWAN
Place-Based learning Education (PBE)	• Critical Thinking & Problem Solving • Communication & Collaboration • Self-Direction • Information, Media & Technology Literacy	• Maps/ GPS • Social and community • Augmented reality • Mobile	• Treasure hunt (M)
Scenario-based learning	• Critical Thinking & Problem Solving • Communication & Collaboration • Self-Direction • Information, Media & Technology Literacy	• Wikis • Timeline	• Lesson (storyline scenario) • H5P

Decision points for the teacher who is planning for his students a new learning path
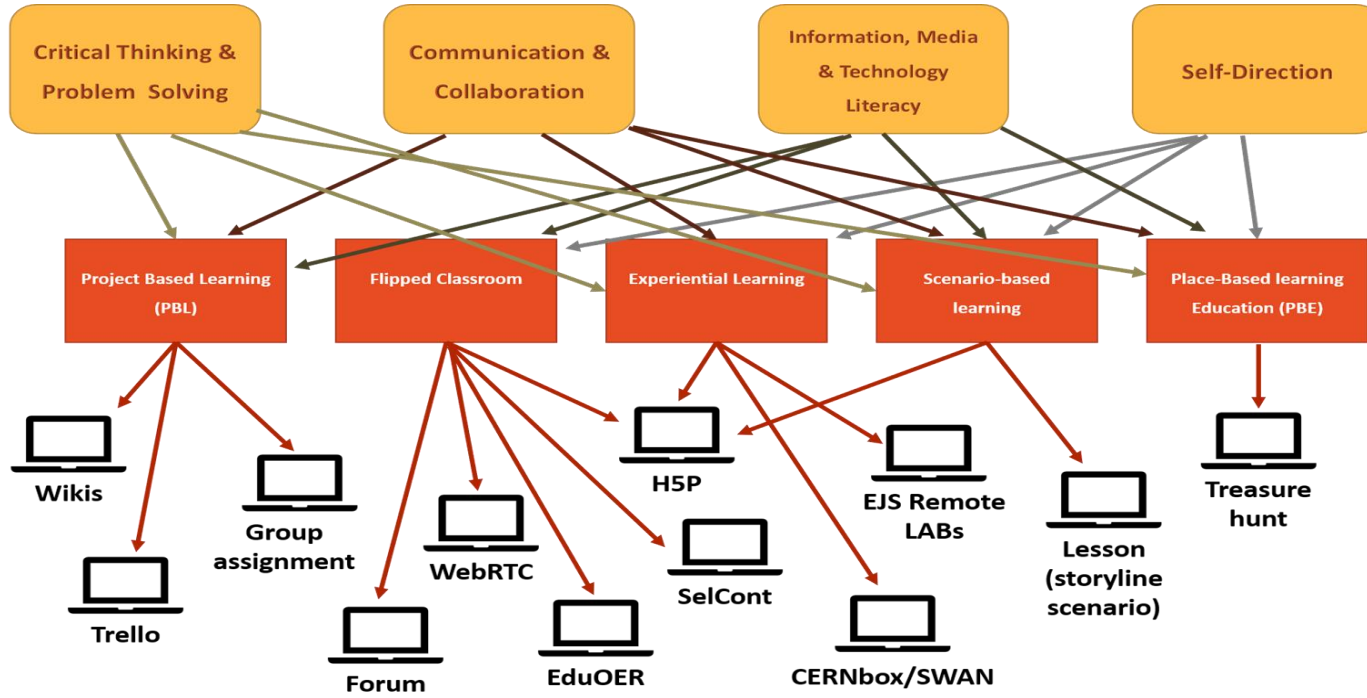
Up2U Roadmap
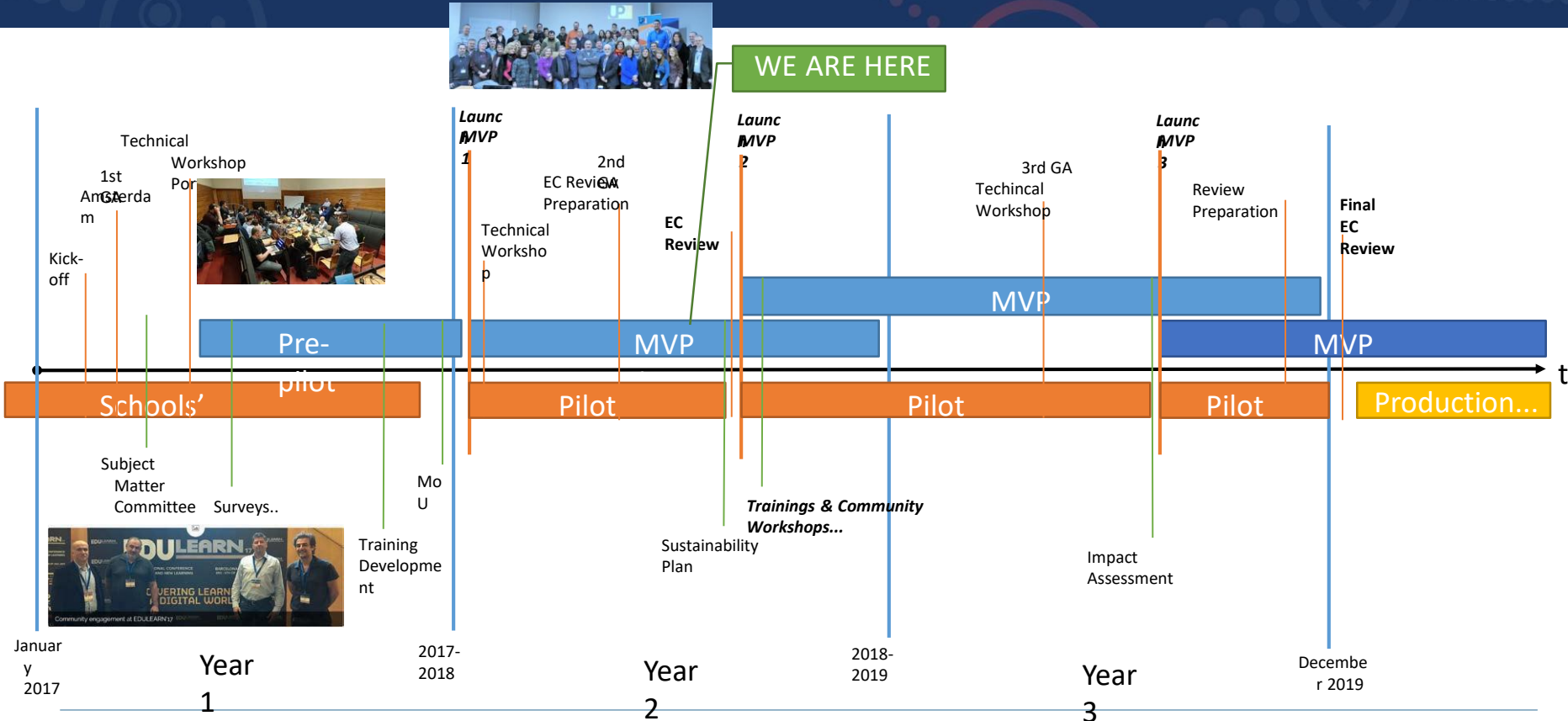
- Agreement with pilot schools
- Roles and responsibilities
- GDPR-compliance
- Online consent & assent forms

Project Based Learning Scenario
Onboarding Process
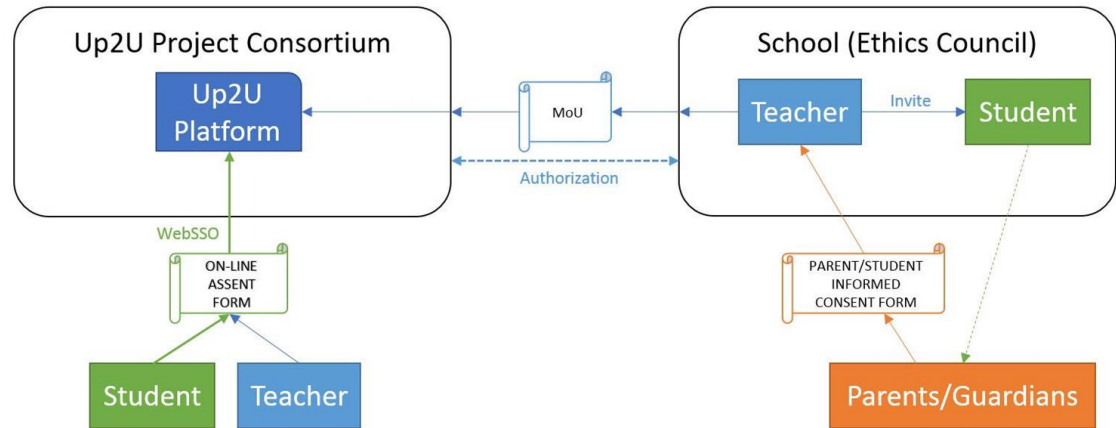
Up2U Professional Development Model in three Phases

- Three main Phases for the Up2U Professional Development
  - Phase One – Introduction to ecosystem
  - Phase Two – Hands on Experience and students involvement
  - Phase Three – "Train the Trainer"

- Nine pilots in Up2U Professional Development program
  - Combination of technology and pedagogy
  - Combination of skills, educational needs, technological tools

- Four pilot on board for the first Professional Development phase
  - Greece
  - Italy
  - Poland
  - CERN

The Professional Development Model – Phase 1 (Greek Case)

- Teachers were divided in two groups based on their skills
- First Phase, March 20th to May 10th 2018
- 80 teachers from 8 schools attended the first module for 5 weeks, 2 days per week, f2f training organized by NTUA and GRNET
- The pedagogical techniques experienced during the training:

  - **Collaborative learning**
  - **Learning-by-doing**
  - **Role taking**

- The first phase in Italy started late April and ended end of May
- 11 teachers from 5 schools
- 5-weeks of online activities

- In the Moodle platform teachers had 9 forums to use:
  - 1 forum for course news
  - 1 forum as a space for presentation and socialization between teachers
  - 2 Forums for discussion on skills in daily professional practice sharing
  - 1 Forum for collect ideas on the subject of the pedagogical scenario – brainstorming activity
  - 2 Forums to discuss about the scenario implementation
  - 1 forum to guide teachers in the implementation of their scenarios
  - 1 forum to provide teachers with technical support

The Professional Development Model- Phase 1 (CERN Case)

- A 16-year-old student, from the United Kingdom, had the opportunity to visit CERN experiment facilities and run hands-on physics experiments at Physiscope laboratories of the UniGE for one week

- The student experienced on CERBox

    - either using the auto-upload capability of the CERNBox mobile application for photos and videos or via the desktop synchronization client

- and on SWAN compiling both :

    - a descriptive notebook, being a storyboard of her experience collecting pictures and videos;
    - a scientific notebook covering the physics phenomenon of Superconductivity and analyzing the collected dataset
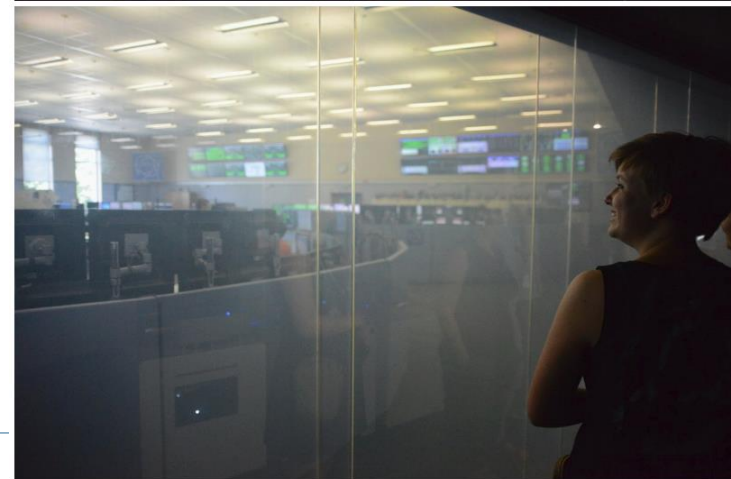
Some of the Up2U Use Cases

- An authenticated course creation in Up2U platform

- Recording a lecture

- Uploading a lecture & Making Assignments

- Interactive video creation and exercises

- Creation, storage and usage of open educational content in up2u repository

- Virtual room communication

Statement

"We strongly believe that all the tools and services the project is going to use and/or make available (i.e. incorporate, design, develop and test) must be sustainable after the lifetime of the project."

- business plans and investigate appropriate business models using the expertise of the Small Medium Enterprise and National Research and Education Network partners and their contacts with third-party business actors

- make it easy for new schools to join the Up2U infrastructure and ecosystem that will form a federated market-place for the learning community

How to engage

1. Come and experiment with the Up2U NGDLE in the cloud
    Distributed private cloud installation at PSNC-Poland, GWDG-Germany and GRNET-Greece.

2. Integrate components and functionalities into your LMS
    Github & Dockerhub images, automated deployment and configuration, documentation and
    support

3. Take the entire open-source platform and deploy it on-prem or in your
    preferred cloud
    Integrated software stack in Docker containers

Up2University.eu

Some teasers….
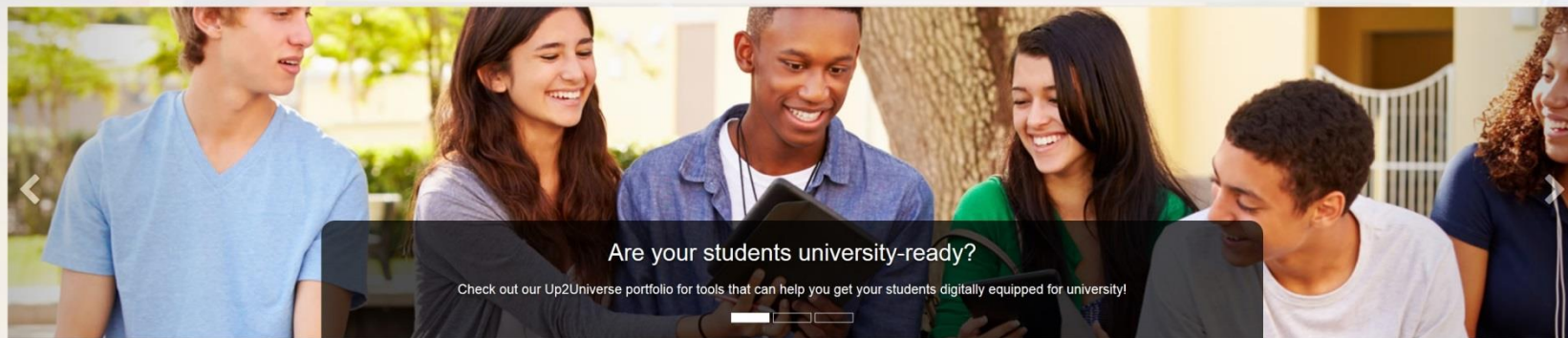
Up2U

Are your students university-ready?

Check out our Up2Universe portfolio for tools that can help you get your students digitally equipped for university!

UP2U

A few steps to higher education

We believe that advanced digital skills are essential for students entering university. Up2U portfolio provides the tools to revolutionize your teaching method and motivates students to benefit from the latest technology during learning. Let us help you unfold the regular classroom and make learning fun.

Techno-pedagogical workshop

Read more...

Containerized education

Platform overview

Early project results

Read more...

COURSE CATEGORIES

- Miscellaneous
- Trainings
- Examples
- User Projects

Welcome

Select an authentication source

Federated Login

Use the federated EduGAIn AAI to log in. After selecting your affiliation you will be redirected to login page of your school.

LOGIN WITH EDUGAIN

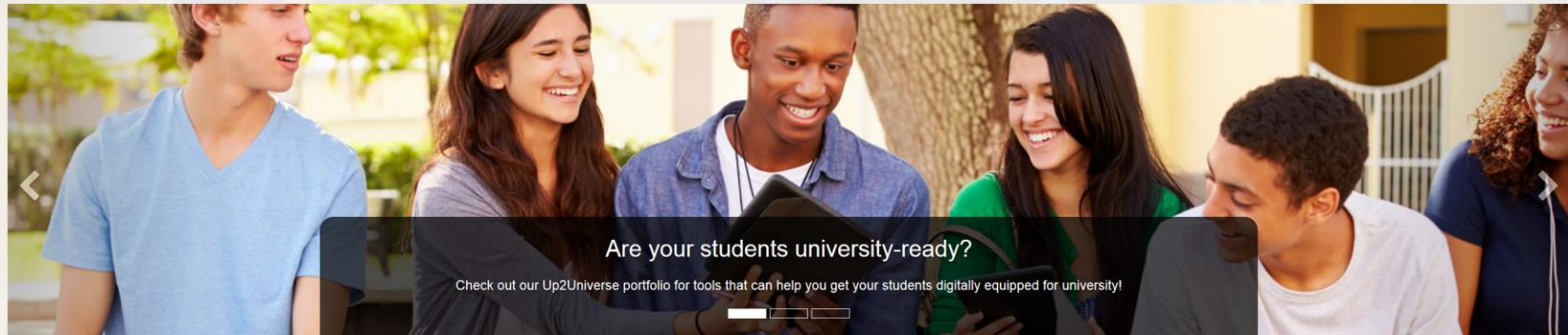## Social Network Login

Up2U Login

The Up2U login is for users from schools that don't participate in the EduGAIN AAi. You can **register here** for a new account.

LOGIN WITH UP2UID

Are your students university-ready?

Check out our Up2Universe portfolio for tools that can help you get your students digitally equipped for university!

UP2U

| | Course Code | | **Enroll** |

Files in CERNbox | Multimedia OERs | Open Repository | **Create a Course**

Next Generation Digital Learning Environment

Up2U makes available a specific Next Generation Digital Learning Environment (NGDLE) that integrates the formal and informal learning spaces for secondary school students and teachers who wish to develop and enhance their teaching and learning skills up to the university standards.

◀ April 2018 ▶

Mon	Tue	Wed	Thu	Fri	Sat	Sun
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

📋 **COURSE CATEGORIES**

🔧 Miscellaneous

Trainings

UP2U
Up To University

eduOER Portal

Menu

Home

By repository catalogue

By subject catalogue

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FAQ

Contact

View only

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- [ ] Vietnamese 40
- [ ] Venda 13
- [ ] Urdu 1
- [ ] Tatar 5
- [ ] Turkish 1
- [ ] Swahili 854
- [ ] Albanian 1
- [ ] Shona 6
- [ ] Slovenian 45
- [ ] Sango 1
- [ ] Russian 41
- [ ] Romanian 10

Welcome to the edu**OER** Portal

Search OERs... 🔍

Advanced Search

Channels

Health and Medicine

Legal and Social

Technology

Welcome to TNC15!

Add eduOER video

✕

Provider
Any ▾

Subject
Any ▾

Language
Any ▾

Year
Any ▾

Duration
Any ▾

Format
Any ▾

Search term
cats 🔍

Clear filters
Reset

Total search results: 9

2014

Wire free and worry free - Session 10A - TNC 2014

HE - TNC

Recorded: 21/05/2014

Viewed 5 times

The introduction of predators such as cats in islands ecosystems

HE - CAMPUSDOMAR

Recorded: 24/03/2014

Viewed 2 times

2013
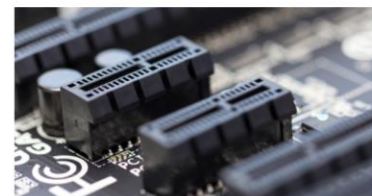
📑 v test

v test

Summary of Video from eduOER

▾ **General**

Section name   ☑ Custom   Video from eduOER

Summary   ❓

↧ | ⓘ ▾ | **B** | *I* | ☰ | ☷ | 🔗 | 🔗̸ | 🖼

Webinar 1: An Introduction to the Next Gener...

Three Dimensions Intertwined in NGSS

▶

Here Connor you can search for videos in eduOER

▸ **Restrict access**

Save changes   Cancel

UP2U DSpace

UP2U DSpace preserves and enables easy and open access to all types of digital content including text, images, moving images, mpegs and data sets for K12 educational level

Learn More

UP2U DSpace repository

UP2U DSpace instance

Welcome to our digital repository of UP2U!

More exciting news to appear here.

Communities in UP2U DSpace

Choose a community to browse its collections.

UP2U

Discover

Author

Kostas Vogias	8
CORLETO, ANDREA	5
Admin User	4
Ilias Hatzakis	3
Andrea Corleto	2
vogias, kostas	2

Subject

test	7
image	5
DSpace	2
ty	2
and	1
another	1

Date issued

2018	6
2017	3
2012	1
2013	1
2014	1

To Casper

First H5P test

Yey it works, does it?

yes

no

🔊 ✕

Events key

👁 Hide global events
👁 Hide course events
👁 Hide group events
👁 Hide user events

COURSE CATEGORIES

⚙ Miscellaneous
⚙ Trainings
⚙ Examples
⚙ User Projects
⚙ Third-party courses
⚙ Other
⚙ Up2U Course

All courses ...

ACTIVITIES

🔧 External tools
💬 Forums
H5P Interactive Content
KnockPlops
📄 Resources

▶   0:04 / 10:02   ⚙ 🔊 ⚙ ⛶

⬇ Download   <> Embed   H-P

UP2U SELCONT LECTURES

Powered by Up2U

Log out from SeLCont

**SeLCont
Synchronized e-Learning Content**

Dimitris Pantazatos – Antonis Vekris
dpantazatos@netmode.ntua.gr - avekr@noc.ntua.gr

Βασίλης Μάγκλαρης - maglaris@netmode.ntua.gr

ECE

Διαφάνειες

Peter Szegedi ▾

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	Name ▲	Size	Modified
	Up2U Test	< 1 KB	a day ago

1 folder   13 B

Up2U Test 🔗

★ < 1 KB, a day ago

up00

☑ Share link

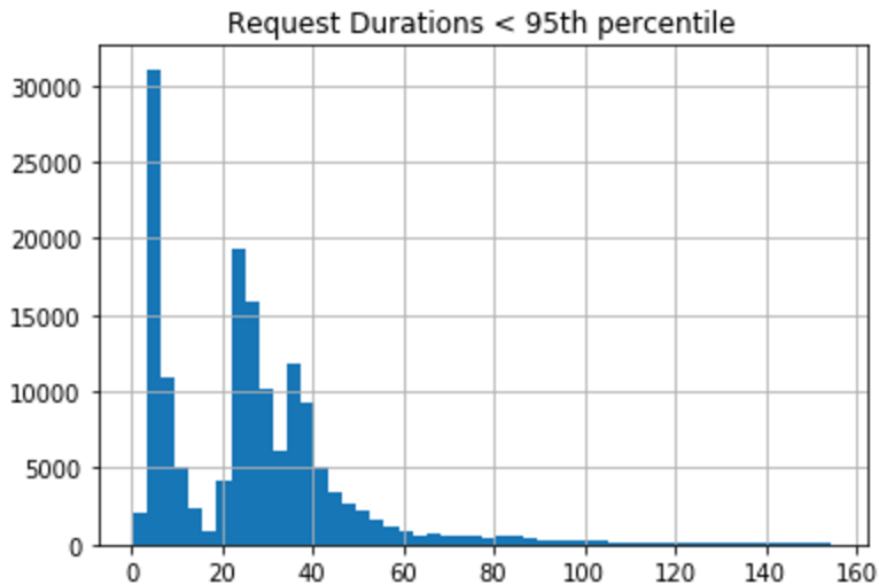https://cernbox.test.up2university.eu/cernbo

☐ Allow editing
☐ Password protect
☐ Set expiration date

Settings

In [143]:
```python
# Remove the very slow outliers from the duration histogram
q = df["duration"].quantile(0.95)
df[df["duration"] < q]["duration"].hist(bins=50)
plt.title("Request Durations < 95th percentile")
plt.show()
```


Request Durations < 95th percentile

All   Collaborative Editing   Content   Doc sharing   Learning analytics   LMS   Real-time Interactions   Recording & Publishing   Social interactions

LEARNING MANAGEMENT SYSTEM

LMS

Learning Management Systems consist in a software application for administration, documentation, tracking, and delivery of educational courses online.

CONTENT

CONTENT

Up2U provides access to content repositories where students and teachers can search and find for educational materials in form of audio, video, and multimedia animations.

COLLABORATIVE EDITING

COLLABORATIVE EDITING

Collaborative editing tools make teamwork easier letting a group of people to work together in real time on documents, notebooks, code, equations, plots, pictures, and videos.

LEARNING ANALYTICS

LEARNING ANALYTICS

Up2U will provide several tools to help teachers and educators to process, analyze, measure and collect data about learners and learning activities.

SOCIAL INTERACTIONS

SOCIAL INTERACTIONS

Online social interactions can be used as an educational tool in formal and informal spaces to capture students attention and participation.

REAL-TIME INTERACTIONS

REAL-TIME INTERACTIONS

Up2U provides a set of tools that allow synchronous communication between students, teachers, members of activities and workgroups.

RECORDING & PUBLISHING

DOC SHARING

moodle

Translate »

tnc18
Trondheim, Norway
10 -14 June 2018
Intelligent networks, cool edges?

GÉANT

Thank you
Any Questions?

mary@netmode.ntua.gr

UP 2 U