R.8.2. 2 training workshops

for the Project Education 4.0: Living Labs for the Students of the Future (LLSF)

Contract number 2021-1-RO01-KA220-HED-000032176

This project has received funding from the European Union's ERASMUS+ research and innovation programme under Grant Agreement no. 2021-1-RO01-KA220-HED-000032176.

Project:	Education 4.0: Living Labs for the Students of the Future (LLSF)
Action Type:	KA220-HED - Cooperation partnerships in higher education
Contract number:	2021-1-RO01-KA220-HED-000032176
Responsible:	National University of Science and Technology POLITEHNICA Bucharest

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

Erasmus+

List of participants

Participant No *	Participant organisation name	Acronym	Country
1 (Coordinator)	National University of Science and Technology POLITEHNICA Bucharest	UNSTPB	RO
2	Universidade NOVA de Lisboa	NOVA	PT
3	Universita Politecnica delle Marche	UPM	IT
4	Universidad Nacional de Education a Distancia	UNED	ES
5	Tel Aviv University	TAU	IL

Revision history:

Rev	Date	Partner	Description	Name
1	22/Jan/2025	NOVA	Final draft	Joao Sarraipa

Disclaimer

This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

LTTA C1 (18-22 September 2023): Train the Trainers Education Week

Day 1: Big Data and Data Visualization (September 18th)

- Trainers: Dorinel Filip, Bogdan Mocanu, Florin Pop, Radu Ciobanu, Catalin Negru, Ciprian Dobre
- Sessions included:
    - Challenges in Big Data analysis.
    - Research reproducibility and data visualization techniques.
    - Tools like Jupyter Notebooks for data cleaning and plotting.
    - Geographic data analysis and distributed learning platforms like EduGAIN.

Day 2: Remote Access and Data Acquisition Systems (September 19th)

- Trainers: José Ferreira, João Sarraipa, Ricardo J. Goncalves
- Sessions explored:
    - Fundamental components and deployment of data acquisition systems.
    - Working with microchips and distributed data systems.
    - Serial and parallel communication methods.

Day 3: E-Learning and IoT Cloud Management (September 20th)

- Launch of the **E-Learning Smart Digital Labs** platform.
- Trainer: Tal Soffer
    - Sessions on pedagogical models and practical tools for virtual labs.
- Transnational project meeting to address administrative and academic issues.

Day 4: Digital Signal Processing and Measurement Systems (September 21st)

- Trainers: Susanna Spinsante, Stefania Cecchi, Alessandro Terenzi
- Key topics included:
    - Introduction to sensors, measurements, and acoustic analysis in a semi-anechoic chamber.
    - Hands-on activities with remote measurement instruments.

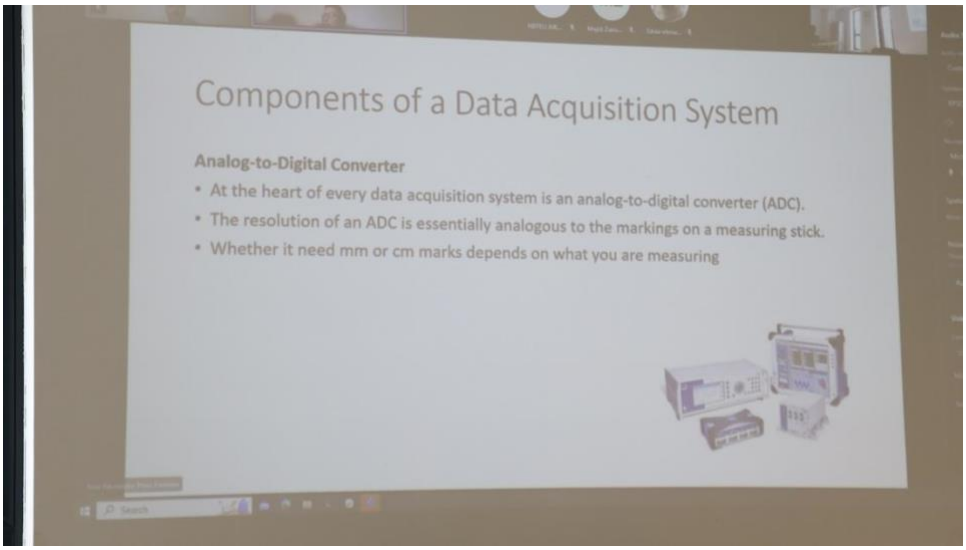
This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

Day 5: IoT Management and AI Integration (September 22nd)

- Trainers: Agustin C. Caminero, Rafael Pastor, Antonio Robles
- Sessions focused on:
    - Cloud management for IoT fleets.
    - Integration of AI methods with IoT datasets.

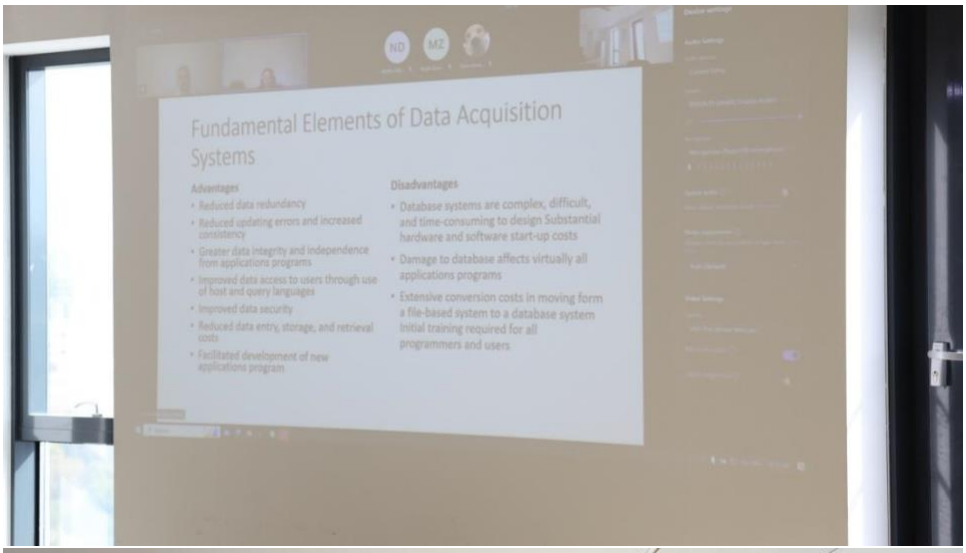
This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

Erasmus+



This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

Erasmus+



This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

Erasmus+

EDUCATION 4.0 LIVING LABS

For the students of the future.

This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

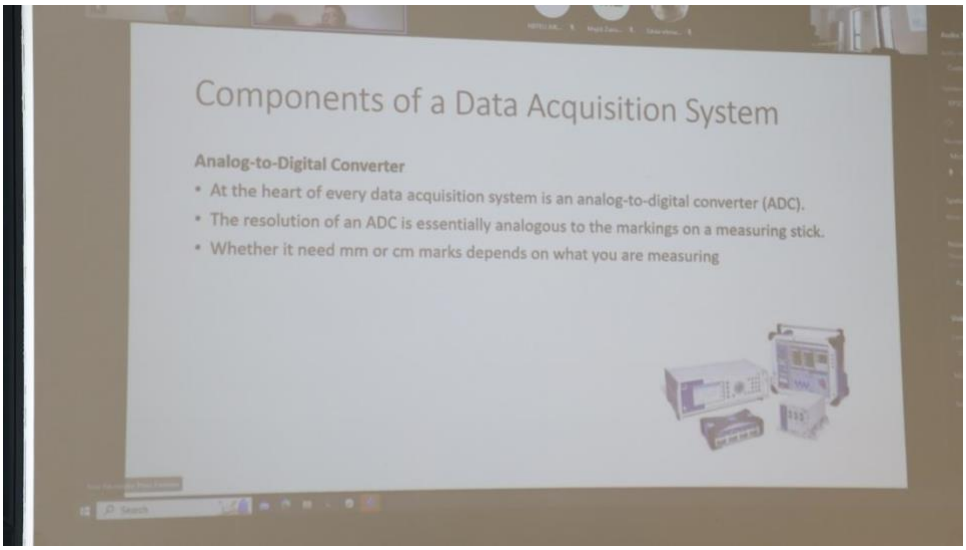
Erasmus+

EDUCATION 4.0 LIVING LABS

For the students of the future.

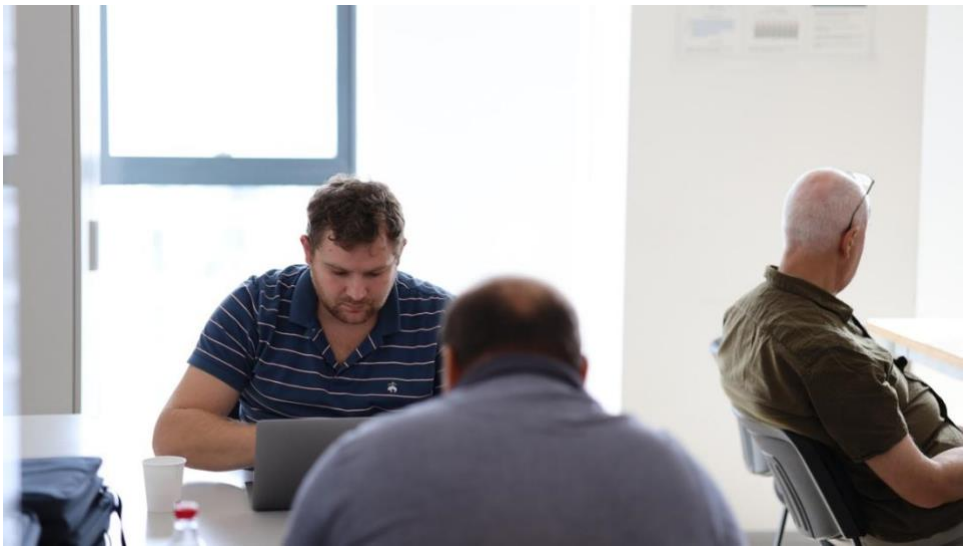
This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

Erasmus+



This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

Erasmus+



This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

Erasmus+

LTTA C2: Students Winter School and Living Labs for the Industry

Date: October 7-11, 2024
Location: NOVA Lisbon and Online

The second Learning, Teaching, and Training Activity (LTTA) of the Erasmus+ project *Living Labs for the Students of the Future (LLSF)* was a comprehensive five-day event hosted by NOVA Lisbon. The event combined the *Students Winter School* and *Living Labs for the Industry: Skills for the Fourth Industrial Revolution* to enhance participants' knowledge and skills in cutting-edge technological domains. This hybrid event featured diverse sessions, workshops, and project presentations, providing a platform for collaboration between academia and industry experts.

Day 1: Introduction to Advanced Audio Topics and Robotic Labs

- **UnivPM (Online)**: Advanced audio processing by Prof. Stefania Cecchi and Dr. Alessandro Terenzi.
- **NOVA**: Hands-on activities in the Remote Robotic Cell Lab with Prof. André Rocha.

Day 2: Project Presentations and IoT Applications

- **NOVA**: Presentation of groundbreaking projects, including:
    - **COMMUNITAS** (Joao Martins)
    - **Smartbear** (Carlos Agostinho)
    - **XpanDH** and **xShare** (Maria Marques)
    - **DS4HEALTH** (Ricardo ?)
    - **FITTER-EU** (Fernando Ferreira)
- **UNED**: Cloud management of IoT fleets by Prof. Agustin Caminero.

Day 3: AI and Data Acquisition Solutions

- **NOVA**: Advanced data acquisition and AI solutions, including:
    - **AIDEAS** (José Ferreira)
    - **AgileHand** (Jorge Calado)
    - **AI-DAPT** (Paulo Figueiras)

This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

  - **CYBERSECPRO** (Ruben Costa)
  - **YachaY** (Joao Sarraipa)
  - **EPAI** (Emmanuelle Restrepo)
- **UNED**: Integration of AI methods for IoT applications by Prof. Llanos Tobarra.

Day 4: Reproducible Research and Virtual Labs

- **UPB (Online)**: Reproducible research insights by Prof. Radu-Ioan Ciobanu.
- **LLSF Virtual Lab**: Toolkit demonstrations led by Joao Sarraipa.
- **UnivPM (Online)**: Demonstrations on liquid instruments for sensors by Susanna Spinsante.

Day 5: Synergies Between Projects

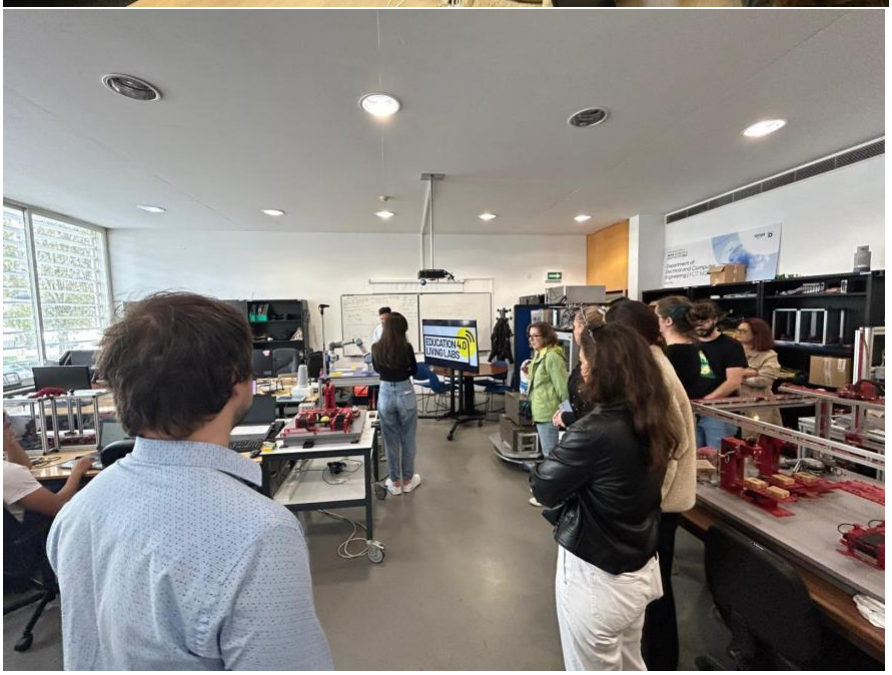
- Dedicated sessions on collaborative synergies across multiple projects, chaired by key representatives from:
  - **SmartBear, XPandH, AIDEAS, AgileHand, SI-DAPT, FITTER-EU, xShare, COMMUNITAS, Herit4Ages**.

This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

Erasmus+

This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

Erasmus+



This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

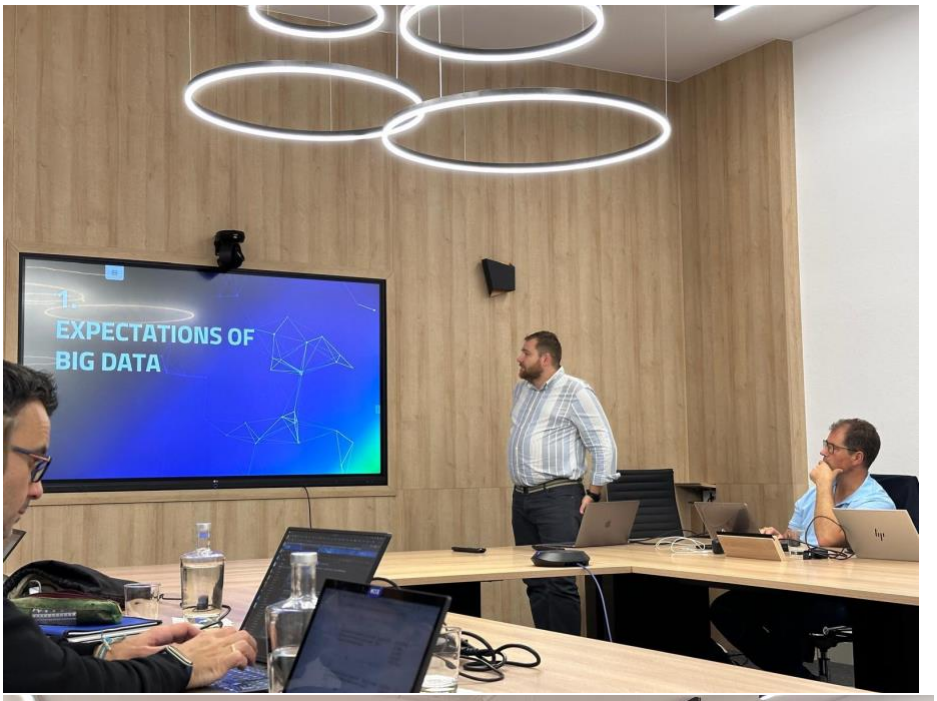
Erasmus+

EDUCATION 4.0 LIVING LABS

For the students of the future.

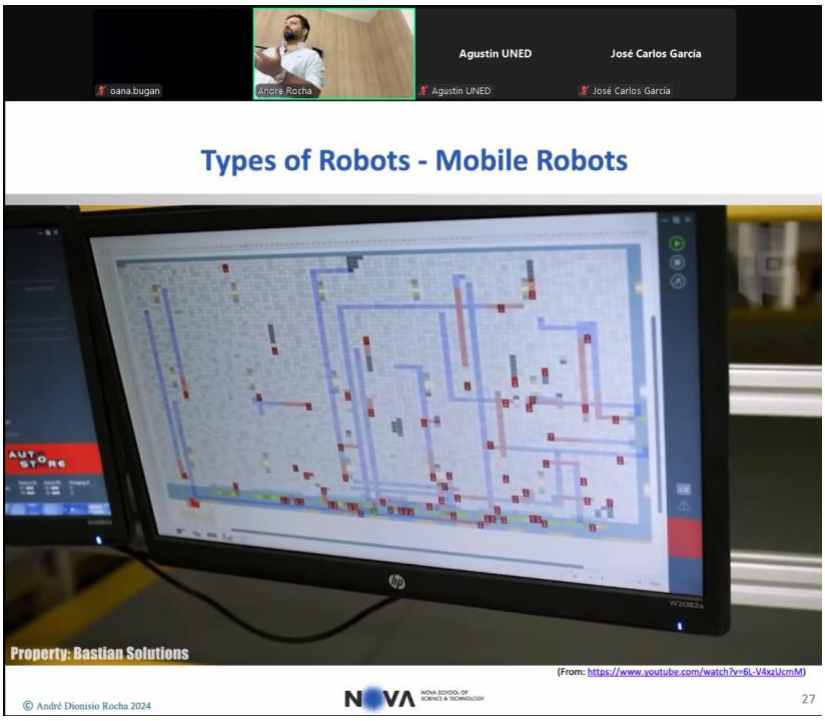
This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

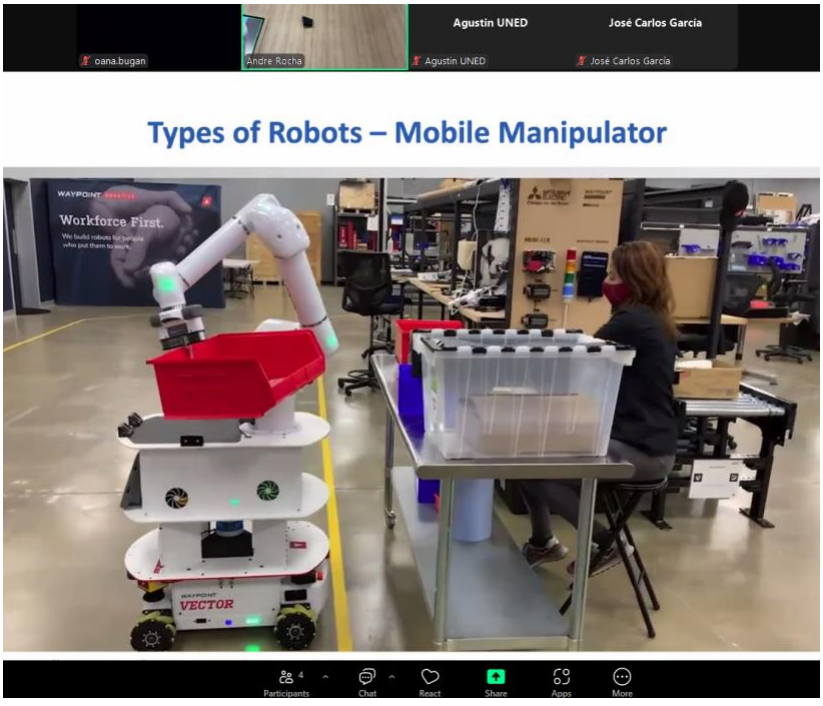
Erasmus+



This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

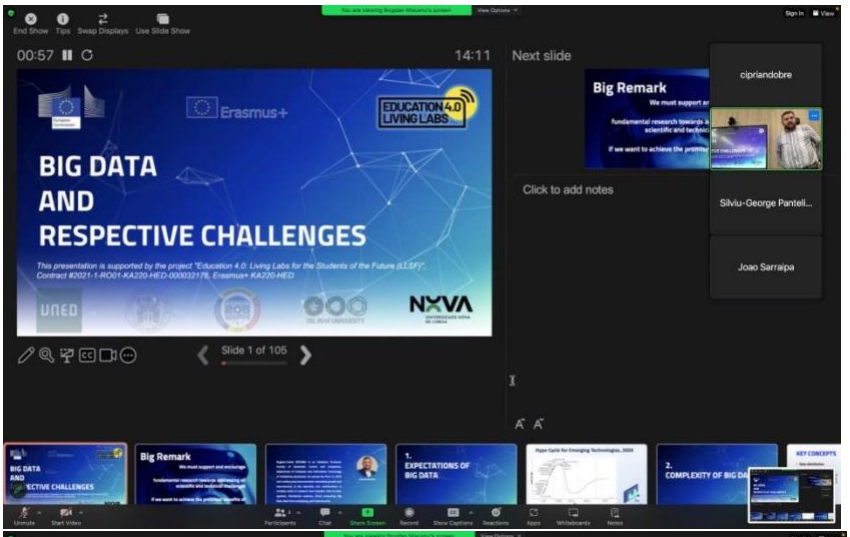
Erasmus+

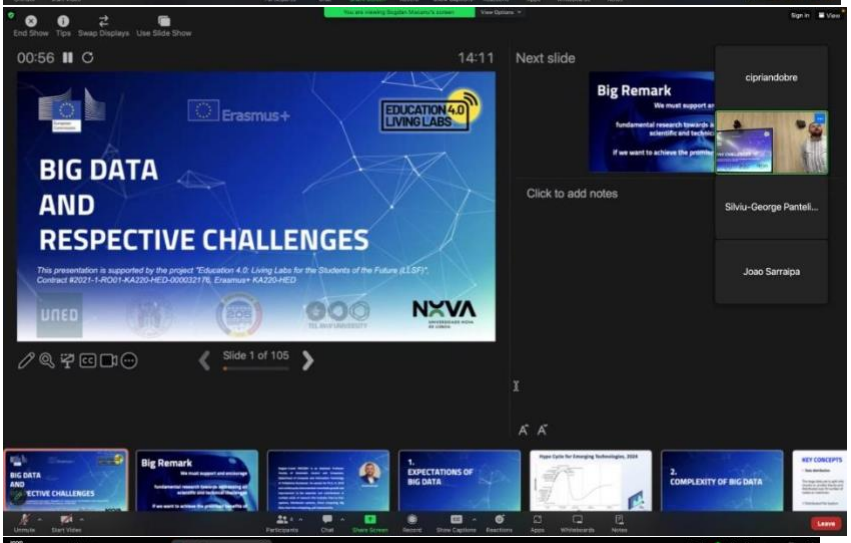


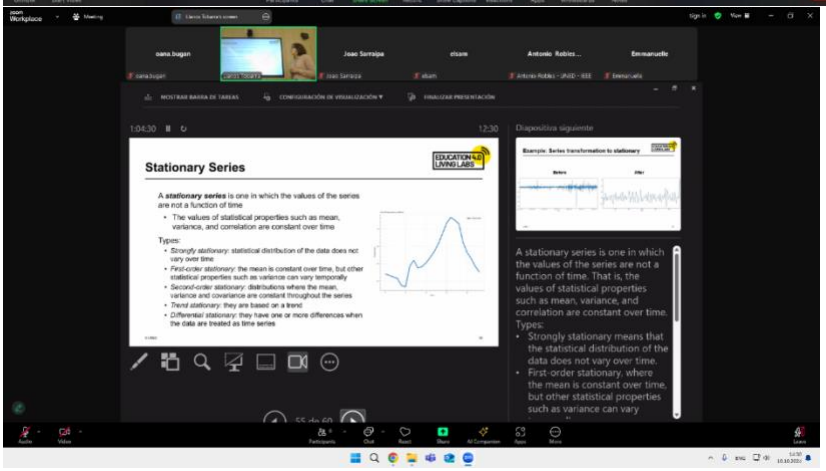


This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

Erasmus+

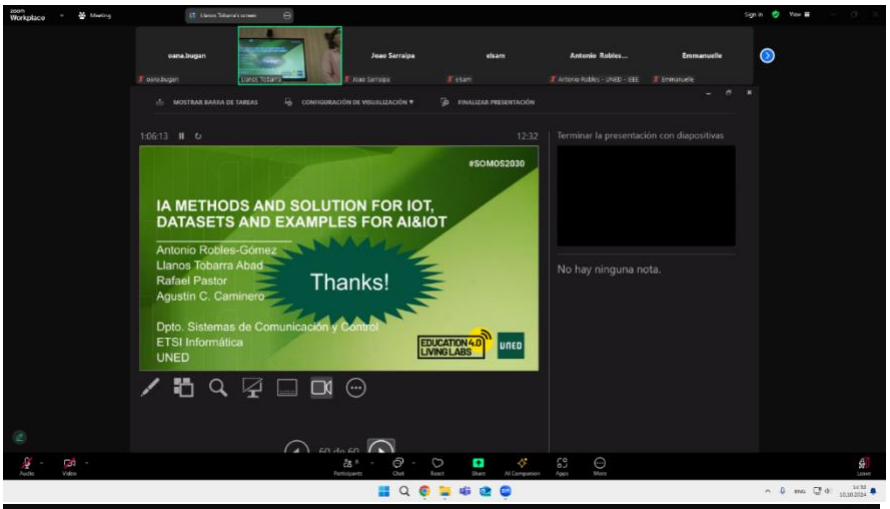


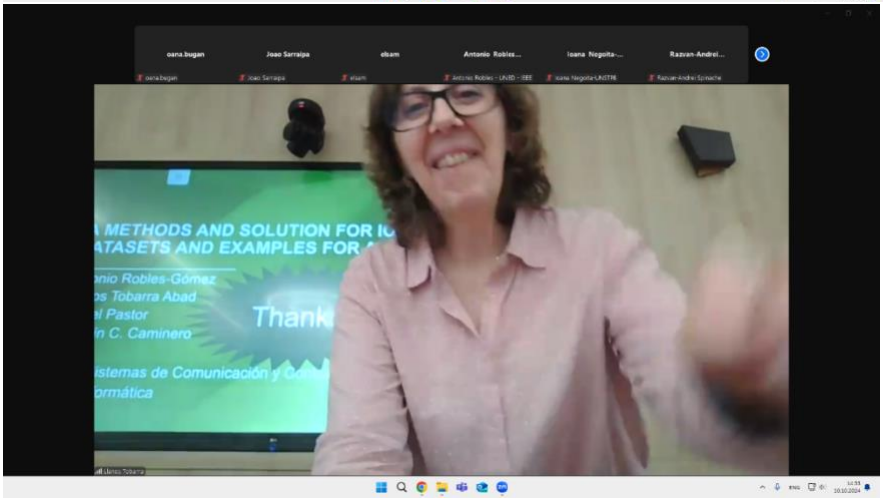




This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

Erasmus+





This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

Erasmus+

LTTA C3: Student Training Week

Date: January 13–17, 2025
Location: National University of Science and Technology POLITEHNICA Bucharest, Library, Room 3.1

Day 1: Teaching in Virtual Labs (January 13, 2025)

Trainers: Tal Soffer, Ricardo Gonçalves, André Rocha, Nuno Vilhena, Manuel Vinhas

- **10:30–11:00**: Overview of **Teaching in Virtual Labs**, emphasizing innovative pedagogical approaches for virtual environments.
- **11:30–12:30**: Discussion on **Pedagogical Models and Practical Tools**, focusing on strategies to enhance learning outcomes using virtual labs.
- **13:30–16:00**: Presentations and practical applications by NOVA, showcasing tools and methodologies for integrating virtual labs into academic programs.

Day 2: Big Data and Research Practices (January 14, 2025)

Trainers: Ciprian Dobre, Radu Ciobanu, Bogdan Mocanu

- **09:30–10:30**: Session on **Big Data Challenges**, exploring the complexities of managing and analyzing large datasets.
- **11:00–12:00**: Presentation on **Research Reproducibility**, highlighting the importance of transparent and repeatable methodologies.
- **13:00–16:00**: Focused discussions on **Data Visualization and Preparation**, and identifying training needs for MSc and PhD students.

Day 3: Case Studies and Practical Training (January 15, 2025)

Trainers: Ciprian Dobre, Radu Ciobanu, Bogdan Mocanu

- **09:30–13:00**: Students presented case studies using their research data, with discussions on findings and methodologies.
- **14:00–16:00**: **Practical Training Sessions** to consolidate learning outcomes, followed by an assessment of the training's effectiveness.

This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

Day 4: IoT and Measurement Techniques (January 16, 2025)

Trainers: Agustin Caminero, Antonio Robles, Susanna Spinsante, Stefania Cecchi

- **09:30–10:30**: Session on **Cloud Management of IoT Fleets**, exploring effective IoT data handling methods.
- **11:00–12:30**: Presentation on **AI Solutions for IoT** with practical examples and dataset management strategies.
- **13:30–16:00**: Training on **Sensor Measurements**, including liquid instruments and handling uncertainty in lab experiments.

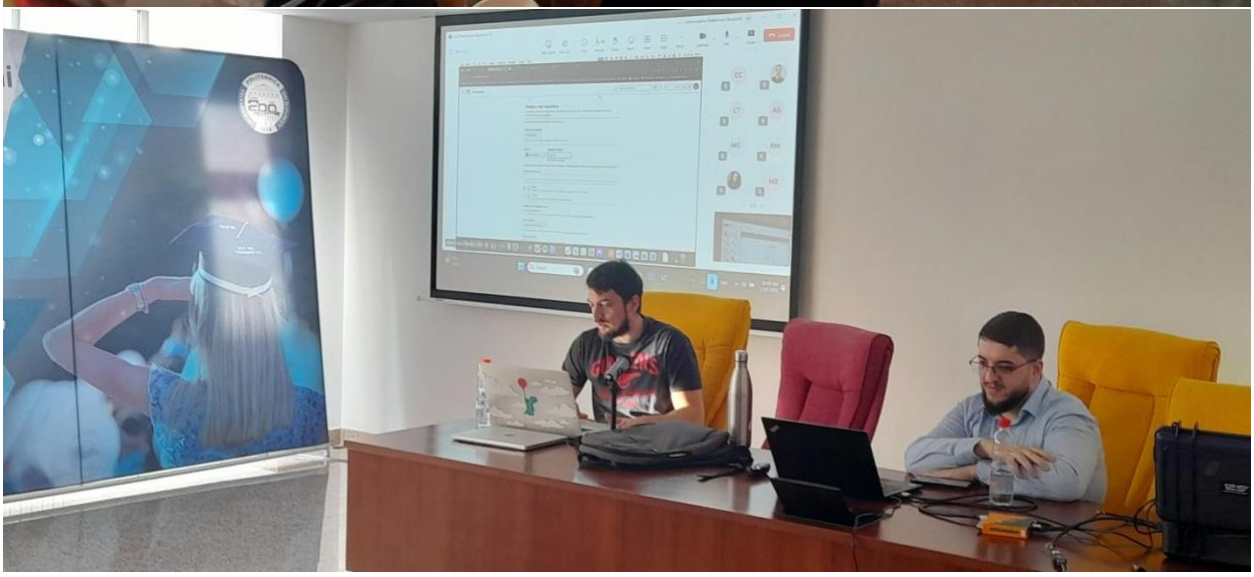
Day 5: Drafting Future Training Modules (January 17, 2025)

Trainers: Ciprian Dobre, Radu Ciobanu, Bogdan Mocanu

- **09:30–11:00**: Discussions on a draft template for a future training module, based on the identified learning needs.
- **11:30–12:30**: Training on **Jupyter Notebooks**, focusing on data cleaning and plotting.
- **13:30–16:00**: **Practical Training Sessions** to reinforce learned skills and discuss the implementation of new modules.

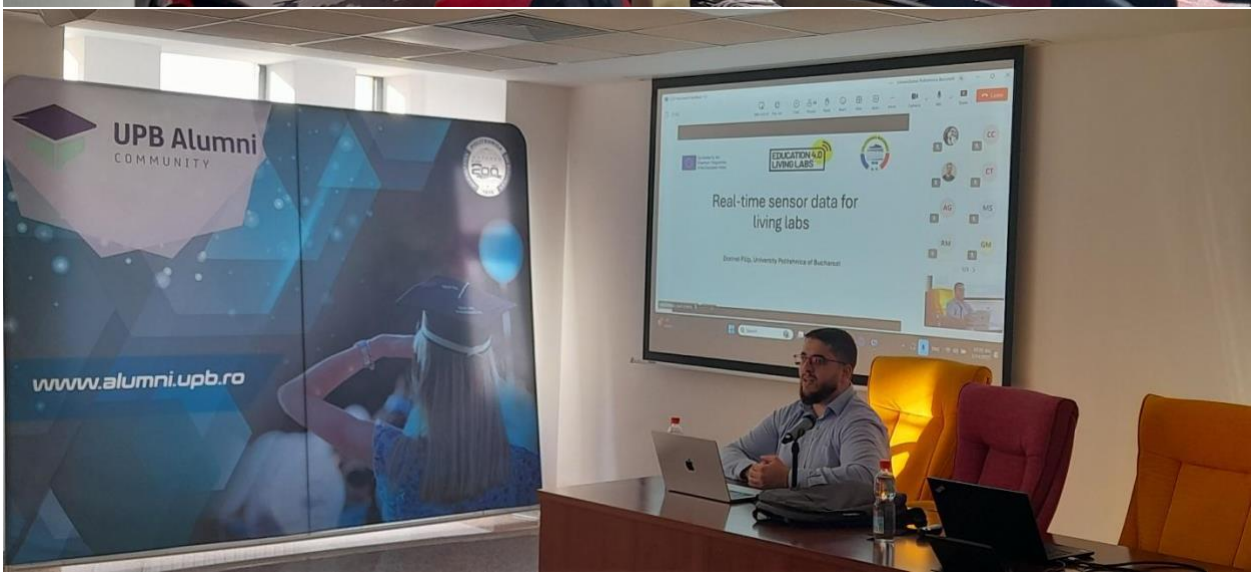
This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

Erasmus+



This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

Erasmus+



This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

Erasmus+

This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

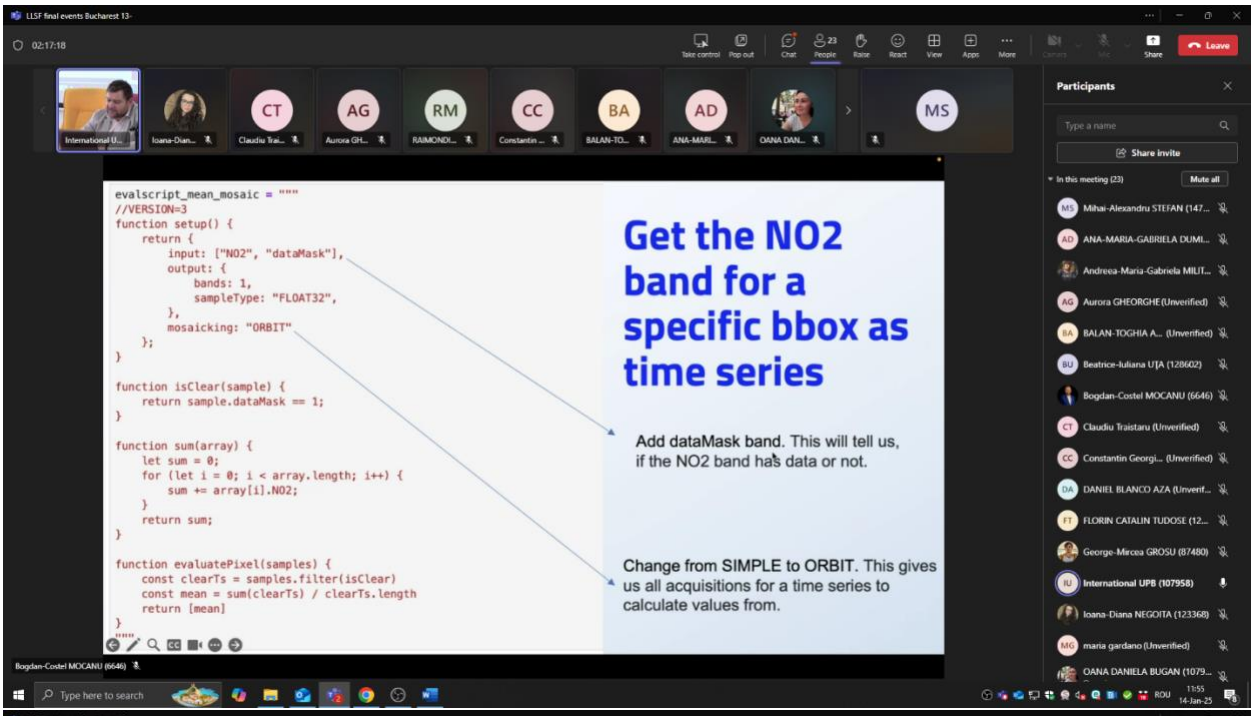
Erasmus+

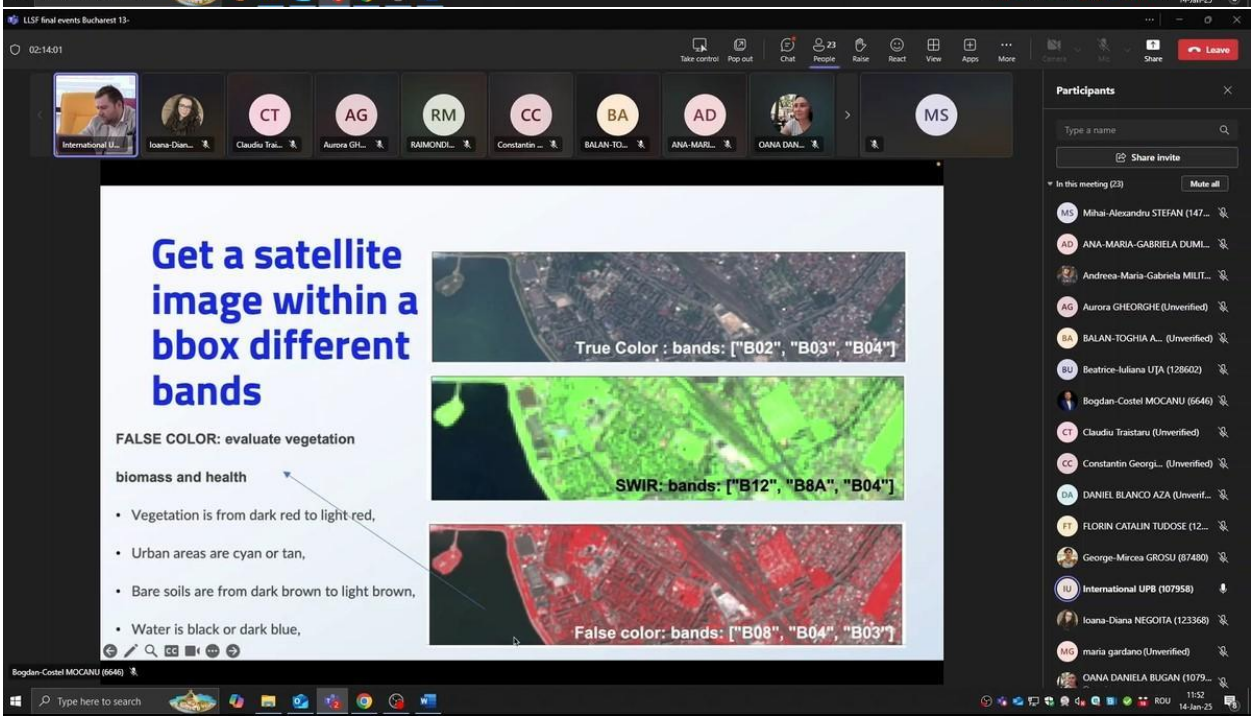
This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

Erasmus+

This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

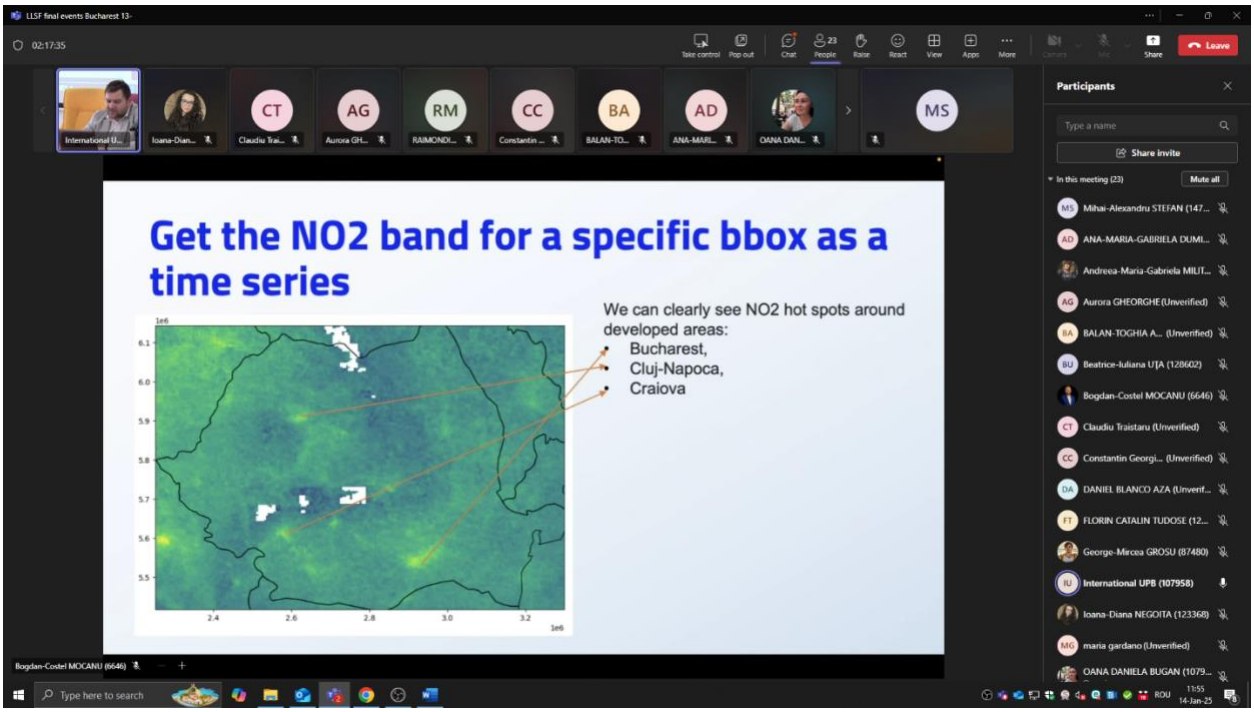
Erasmus+

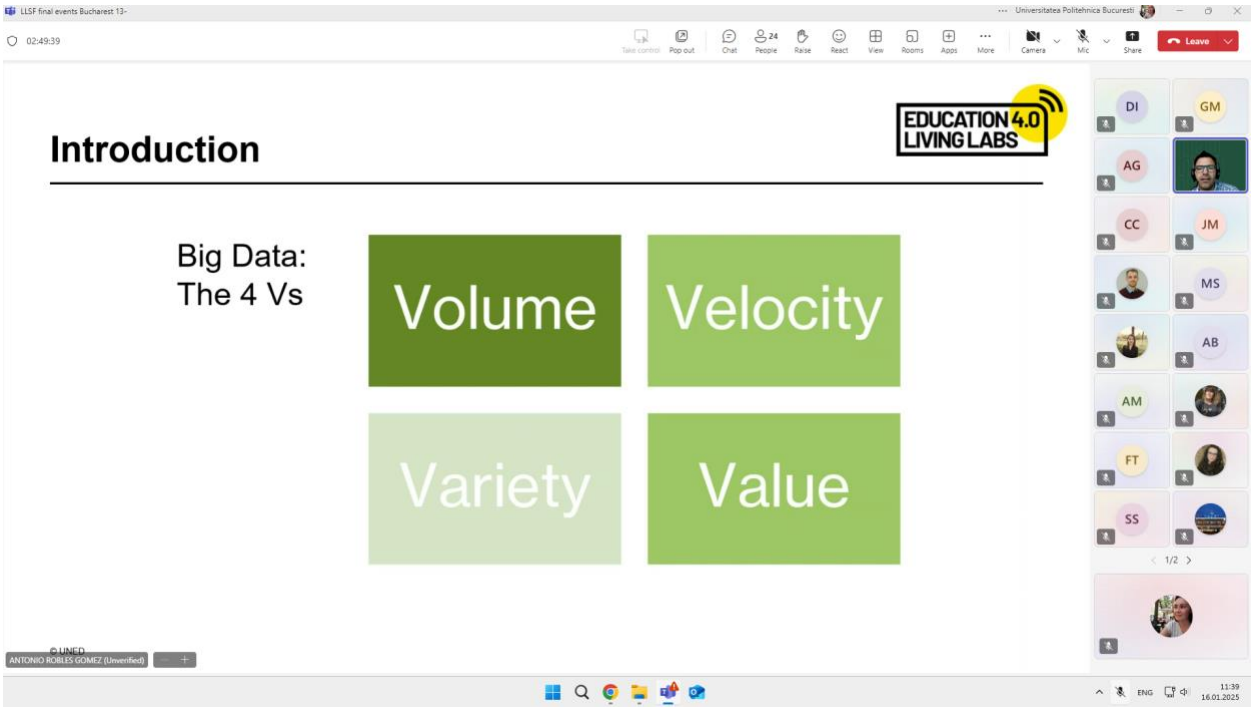




This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

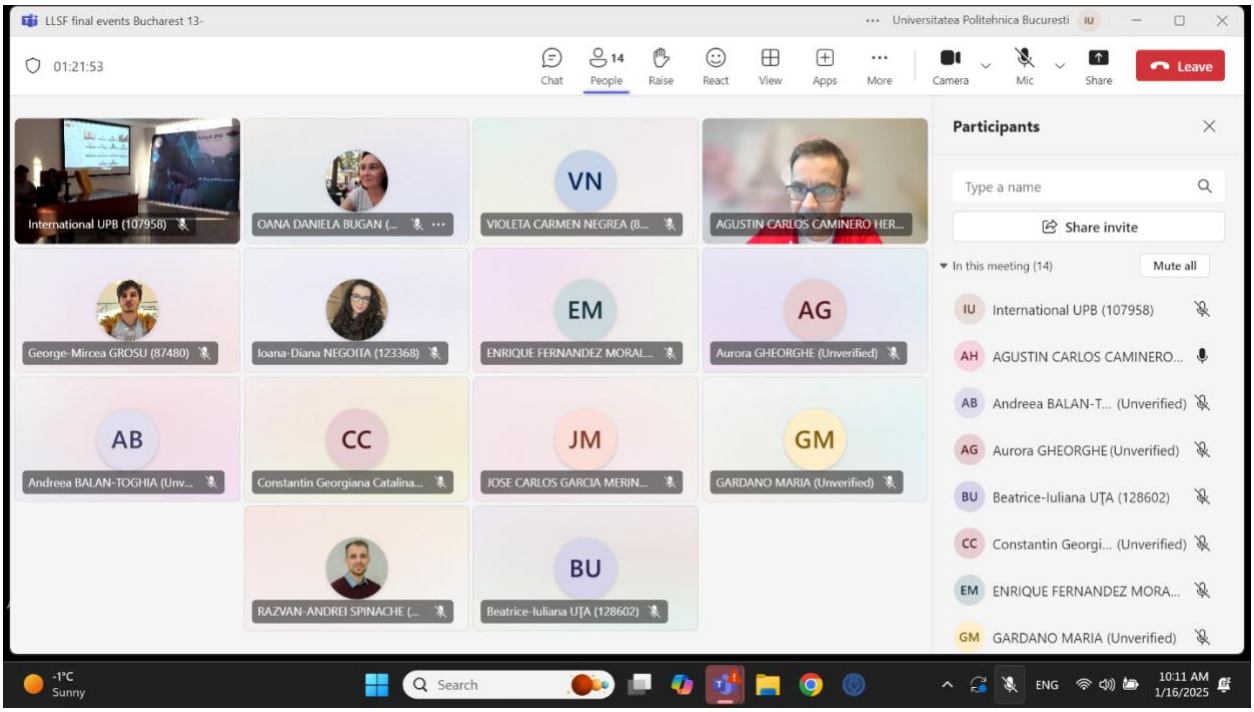
Erasmus+





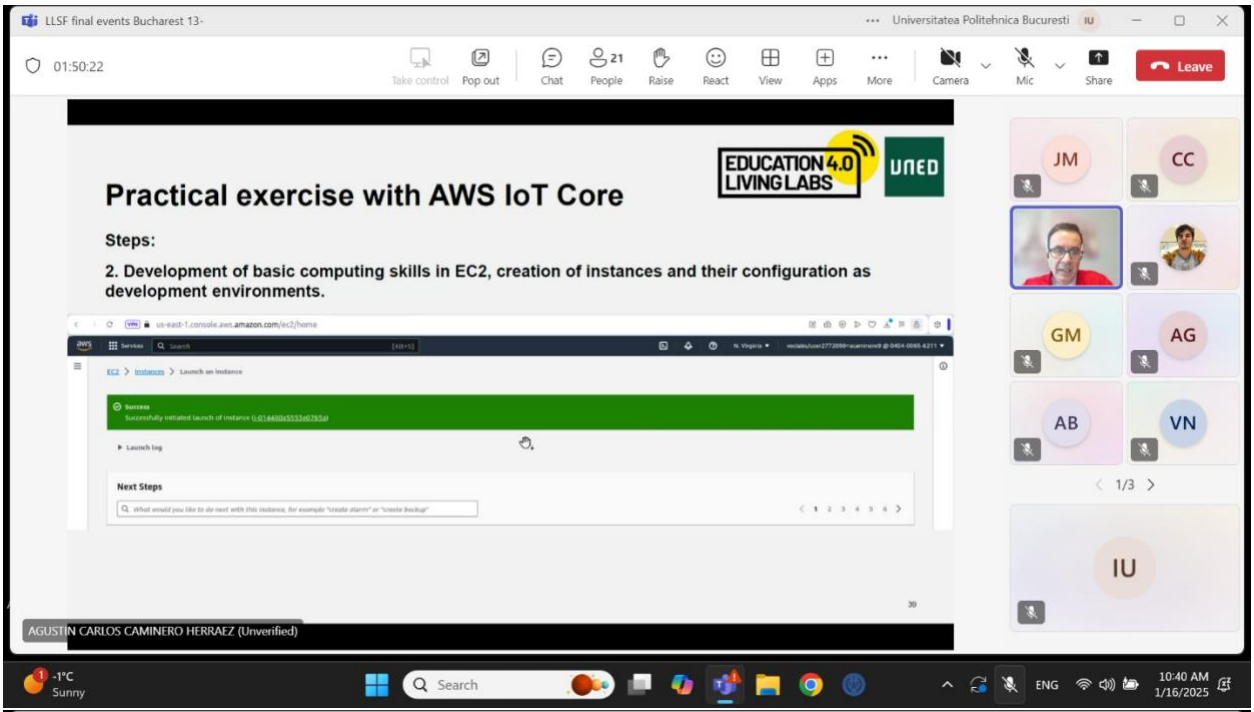
This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

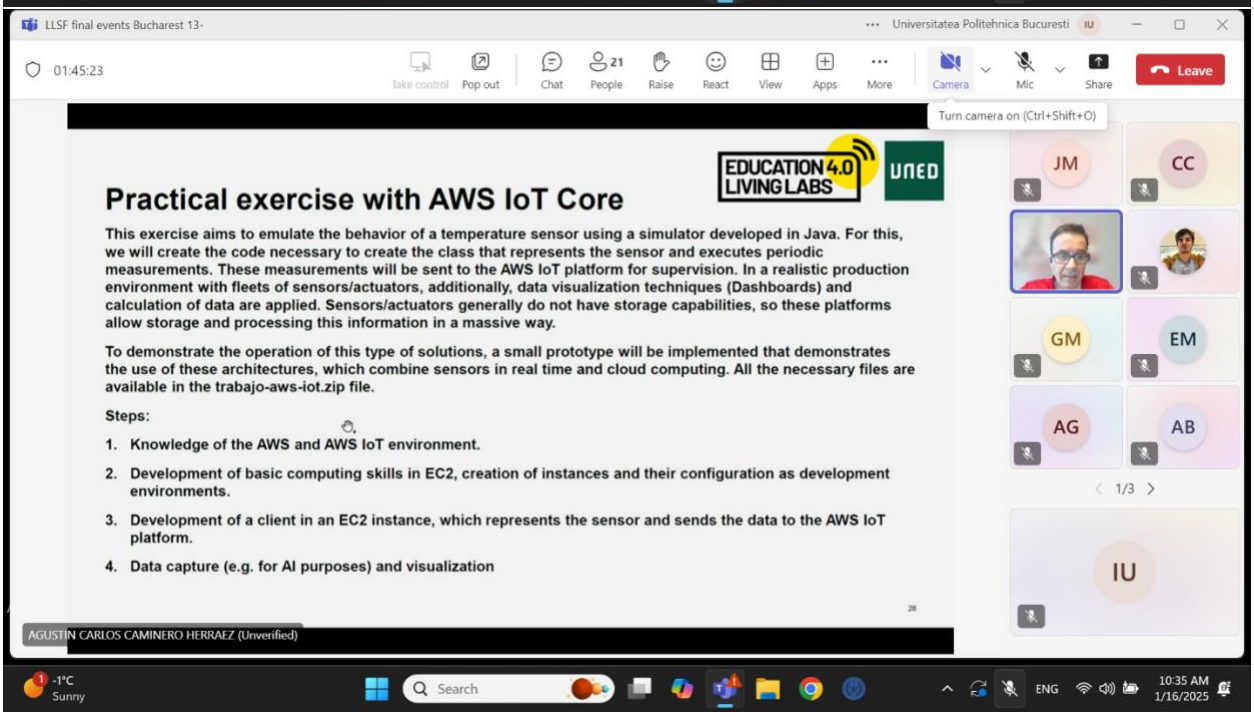
Erasmus+



This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

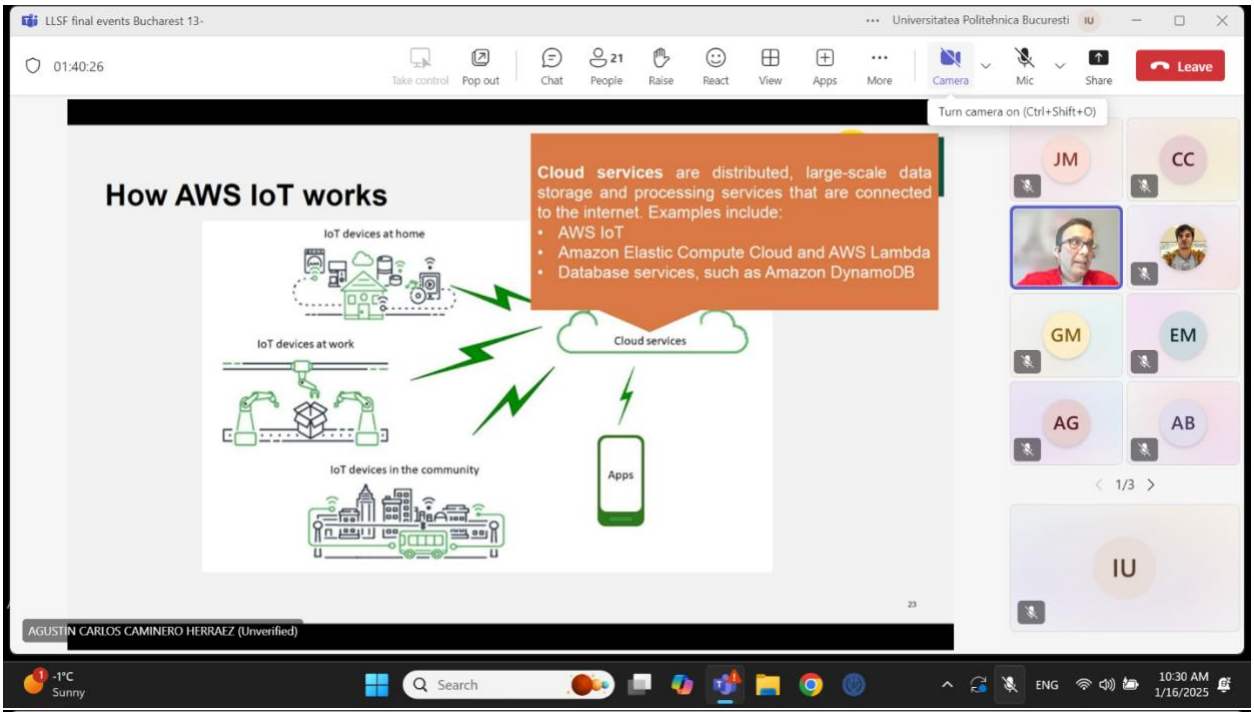
Erasmus+

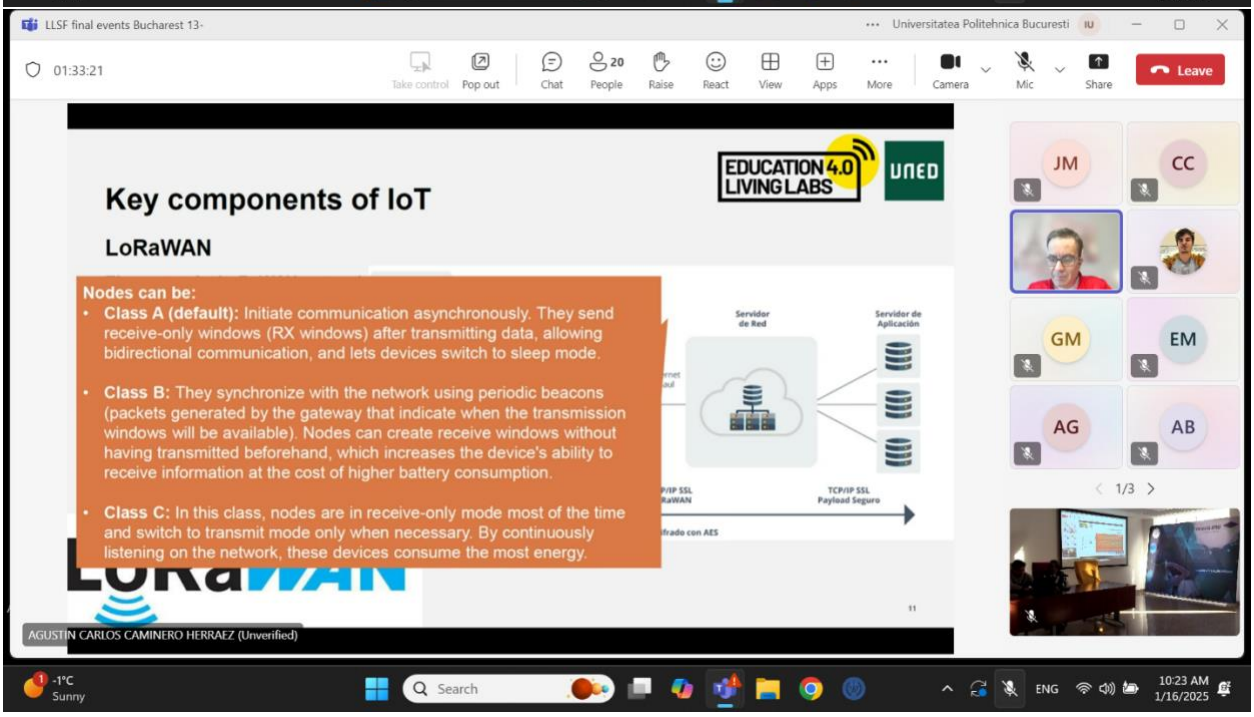




This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

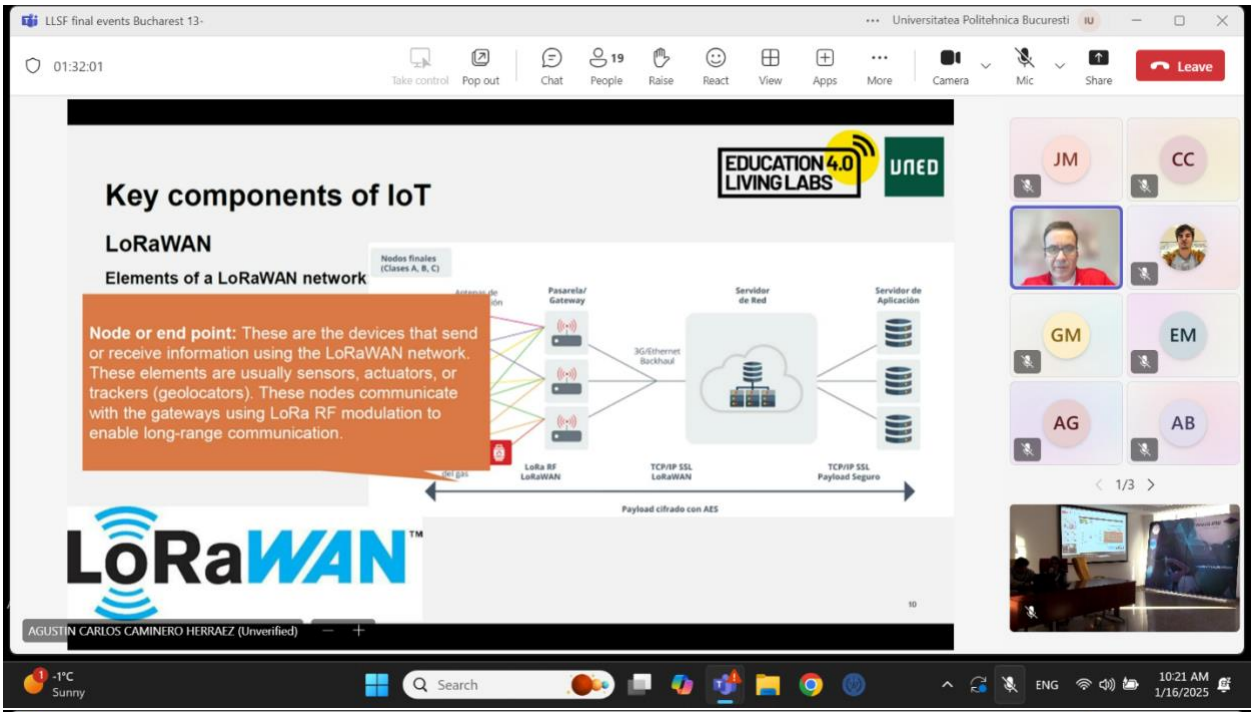
Erasmus+

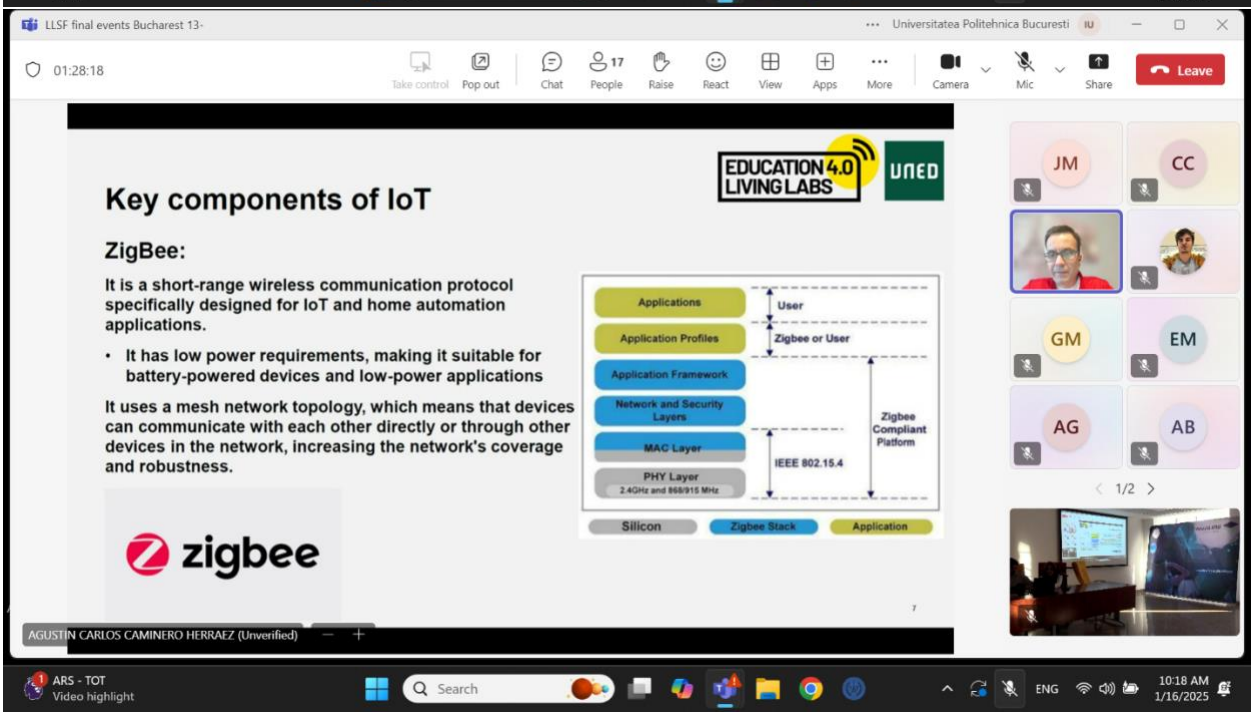




This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

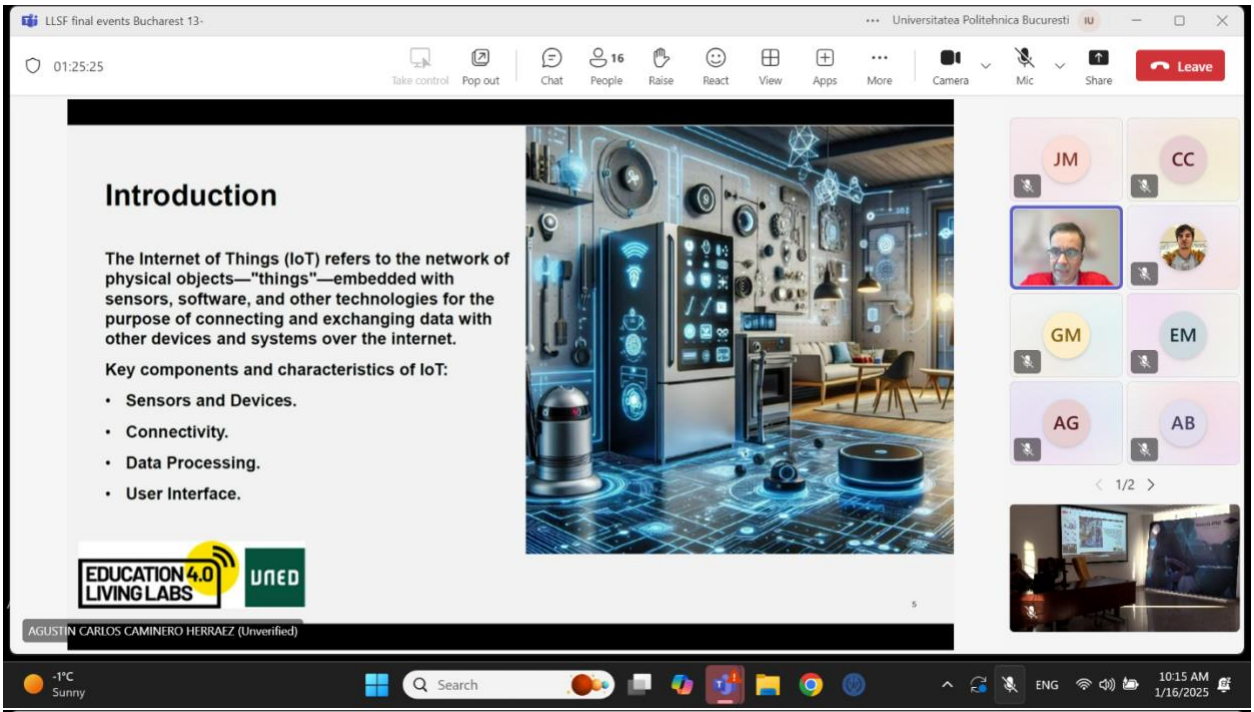
Erasmus+

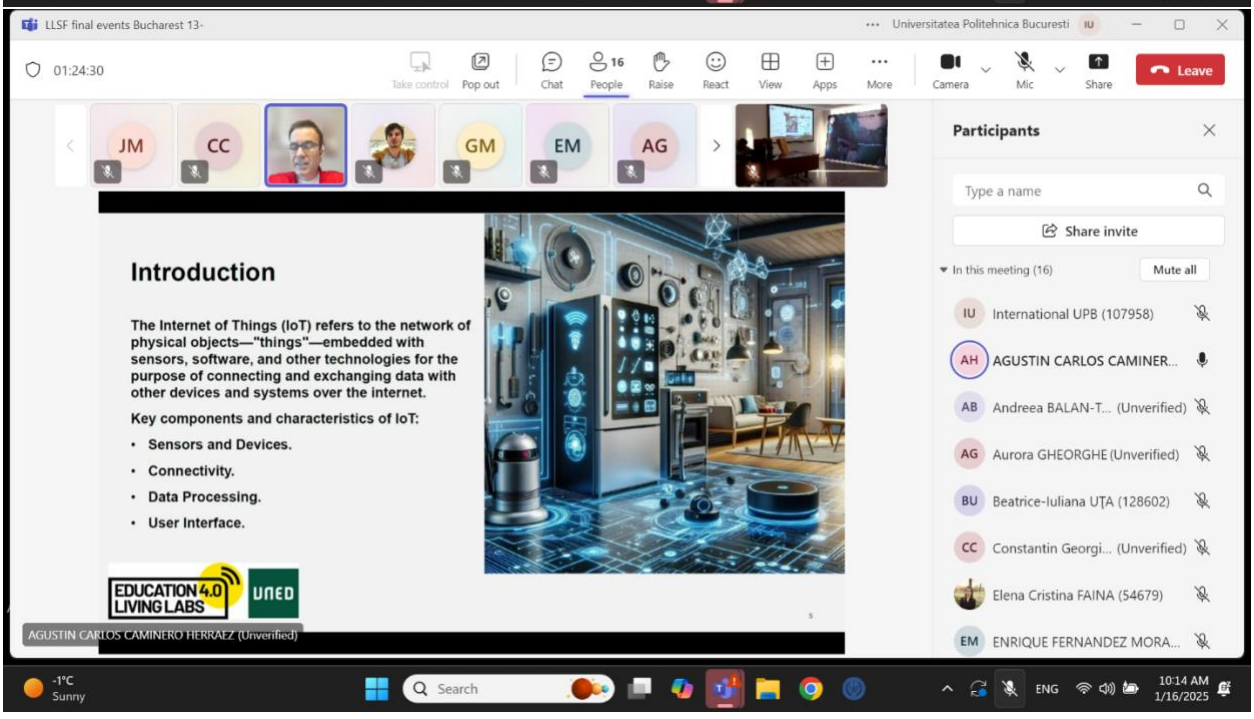




This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

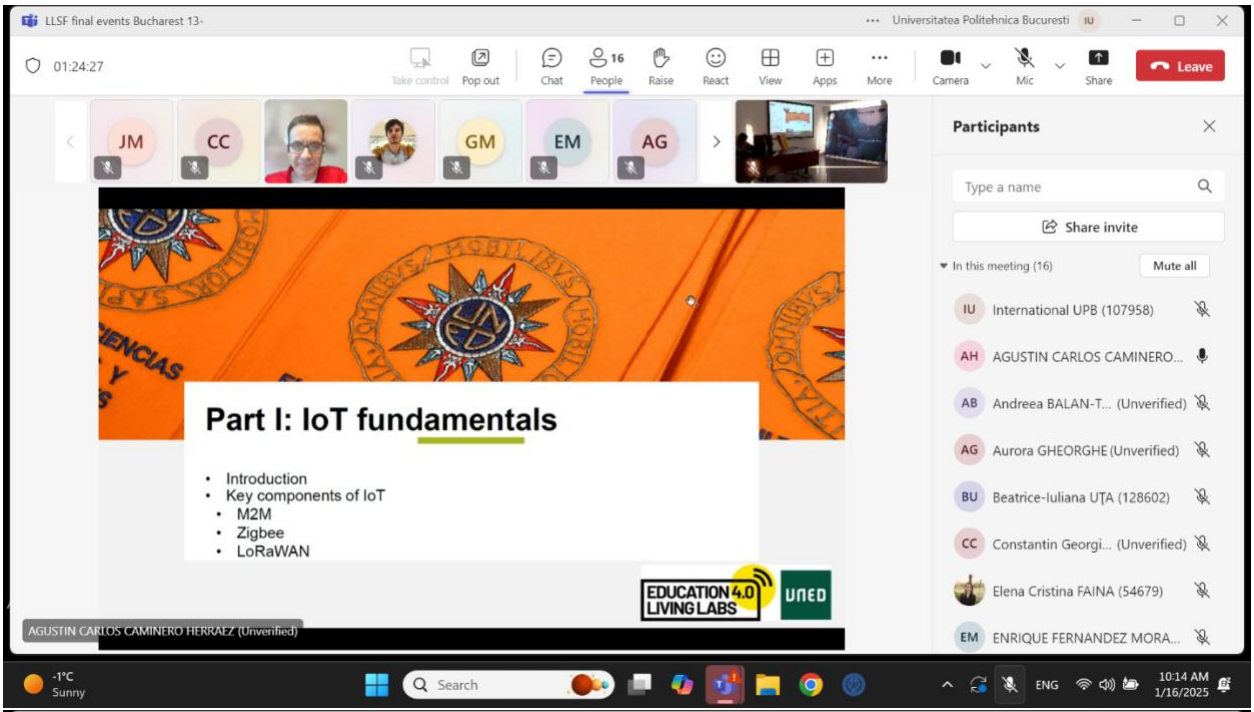
Erasmus+

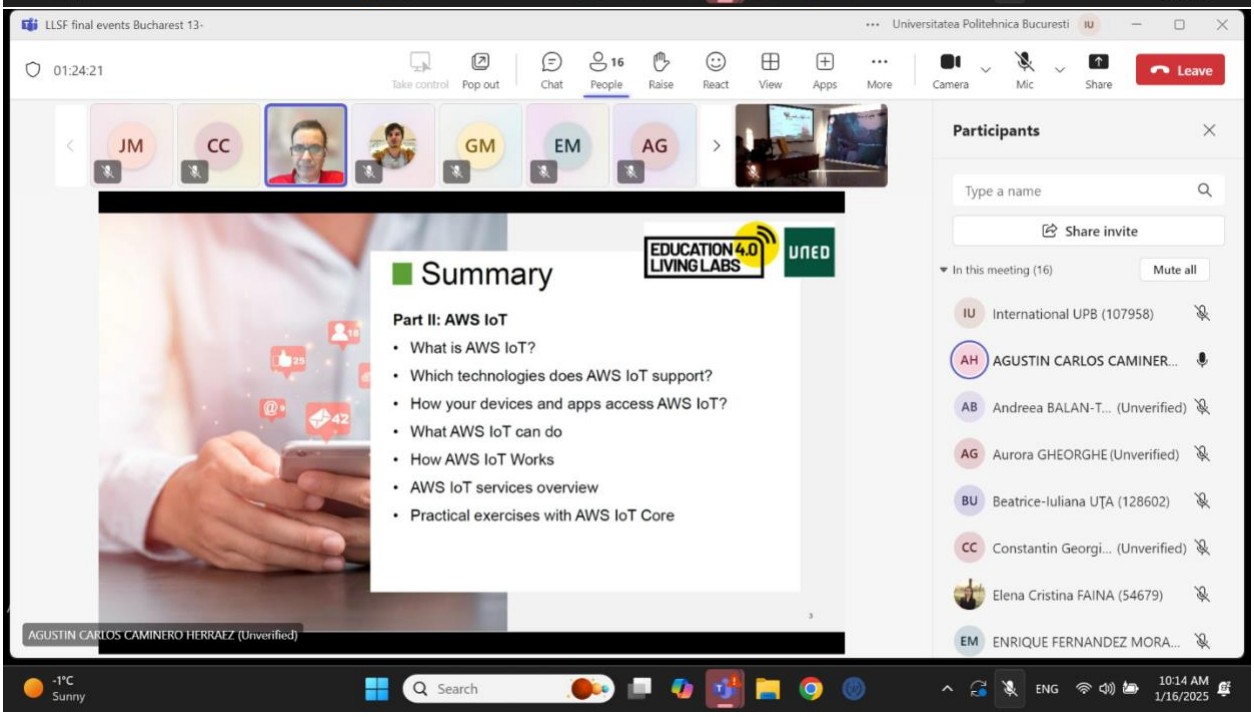




This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

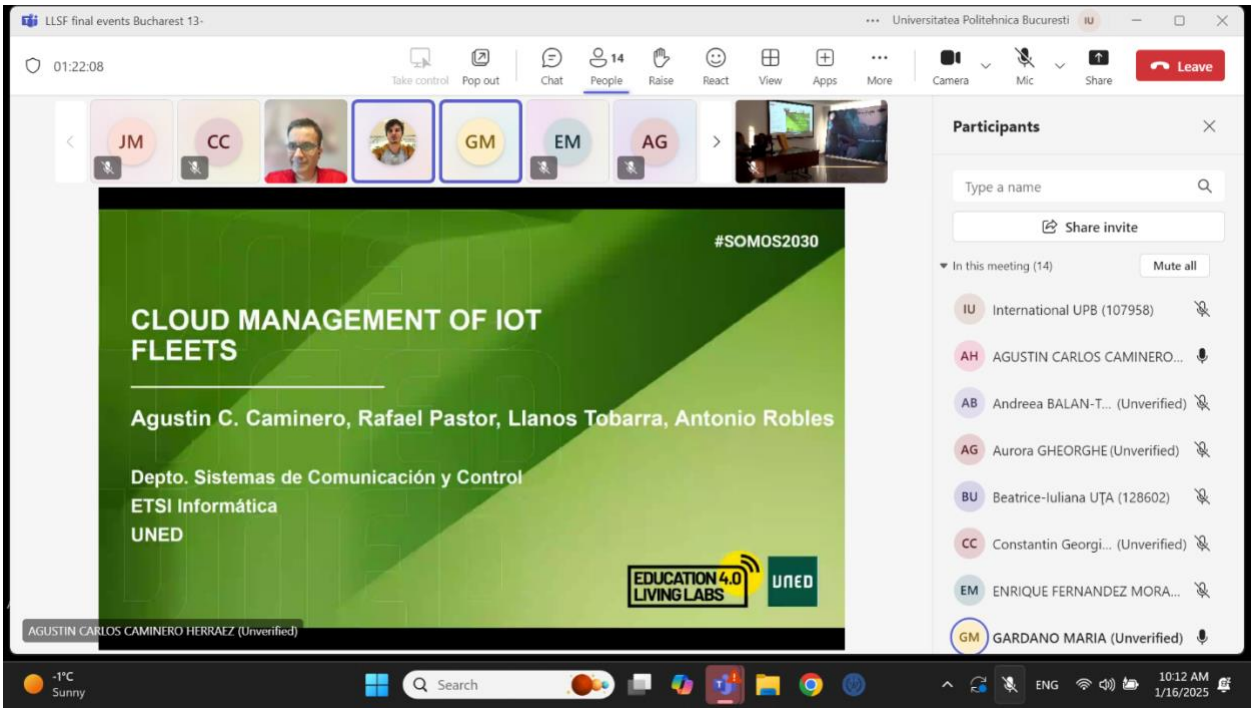
Erasmus+

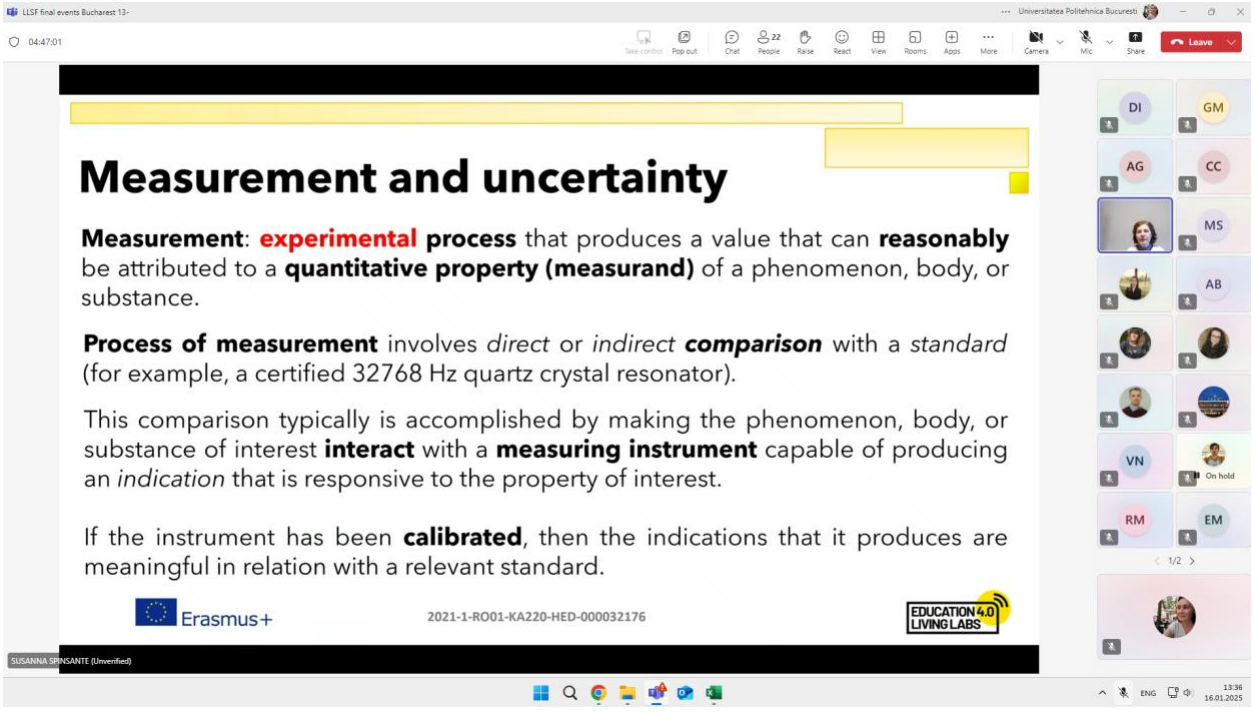




This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

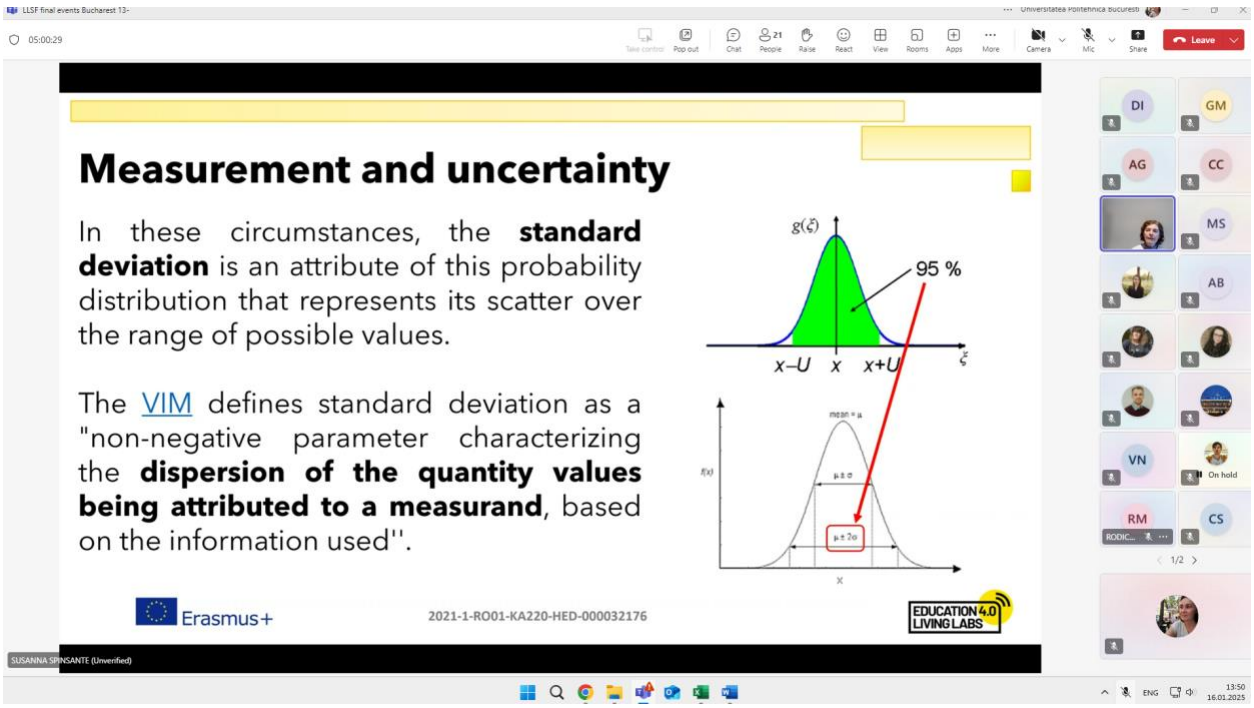
Erasmus+

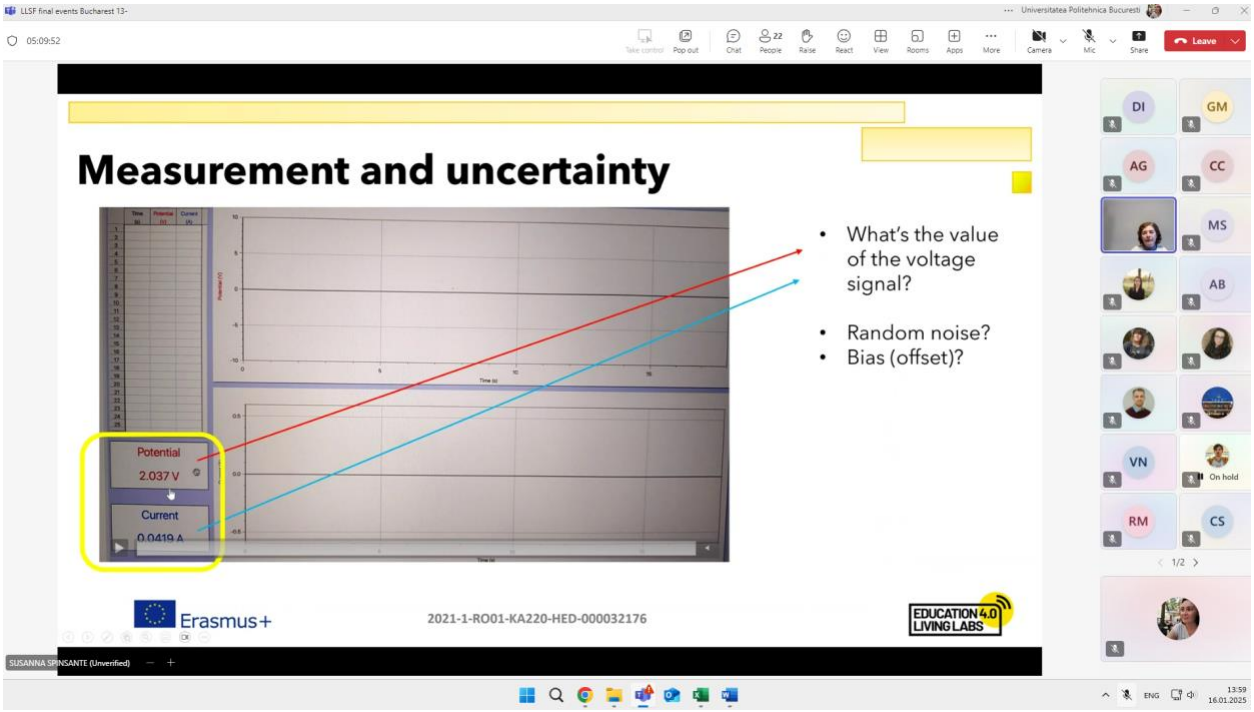




This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

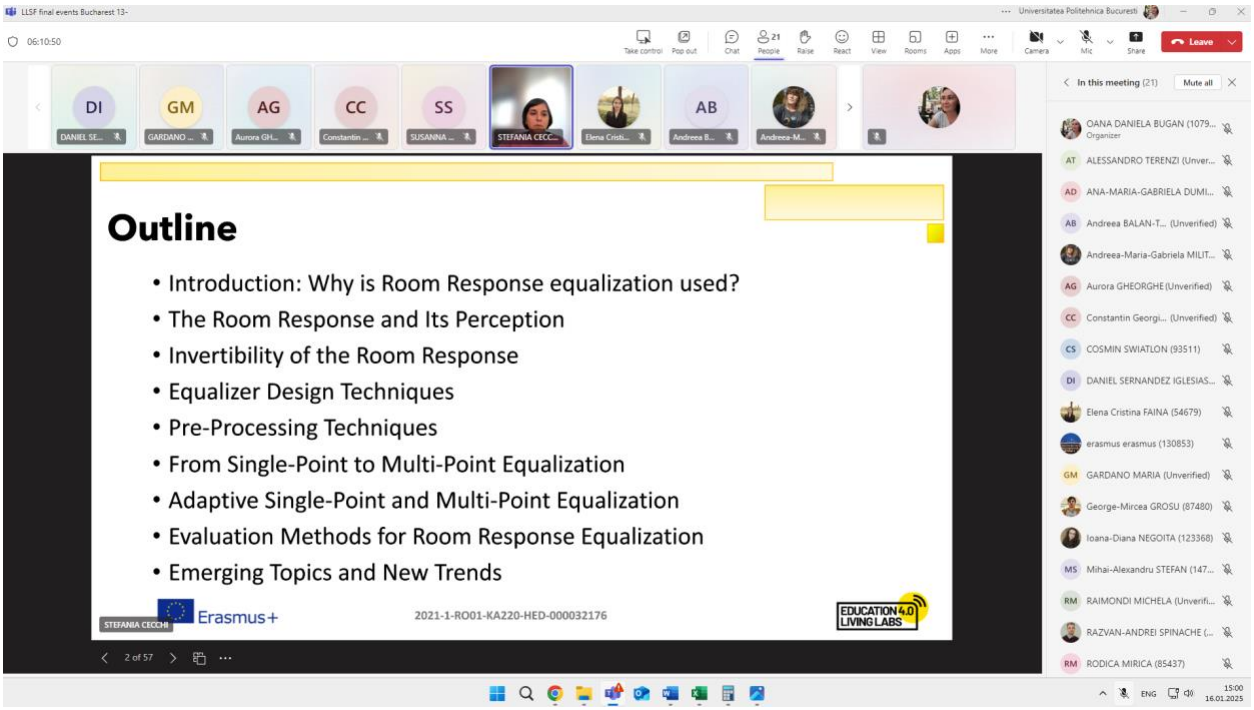
Erasmus+

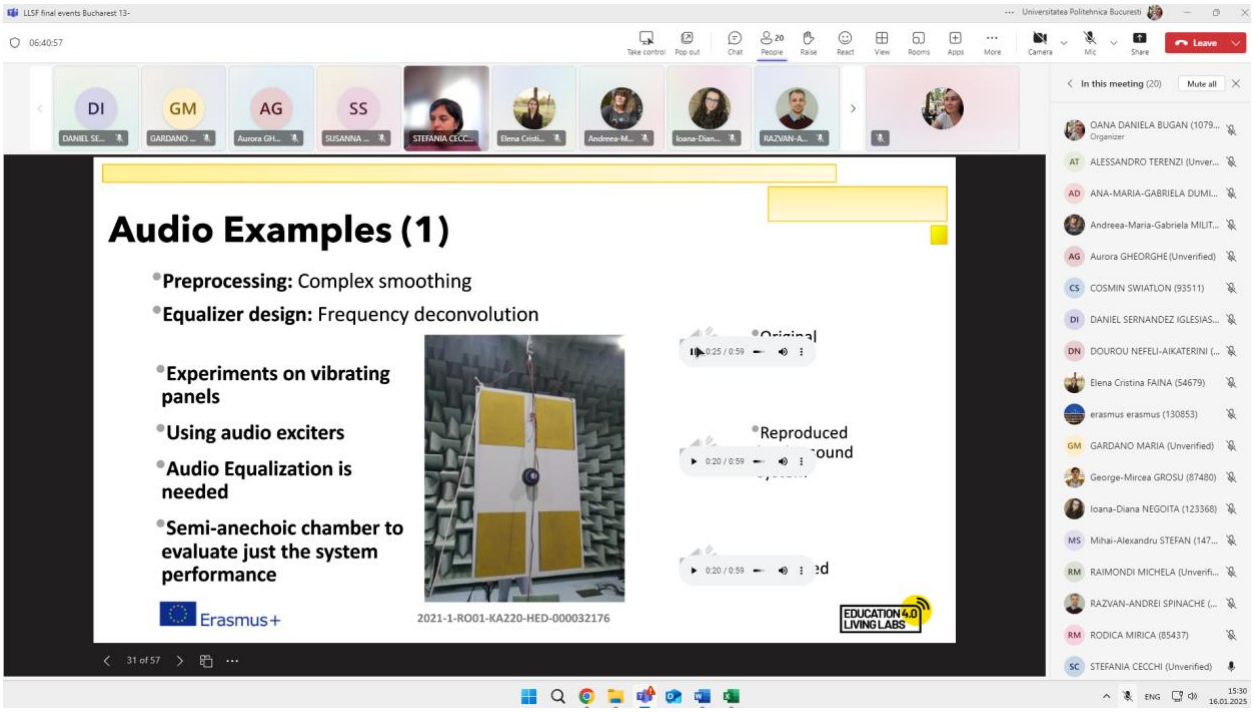




This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

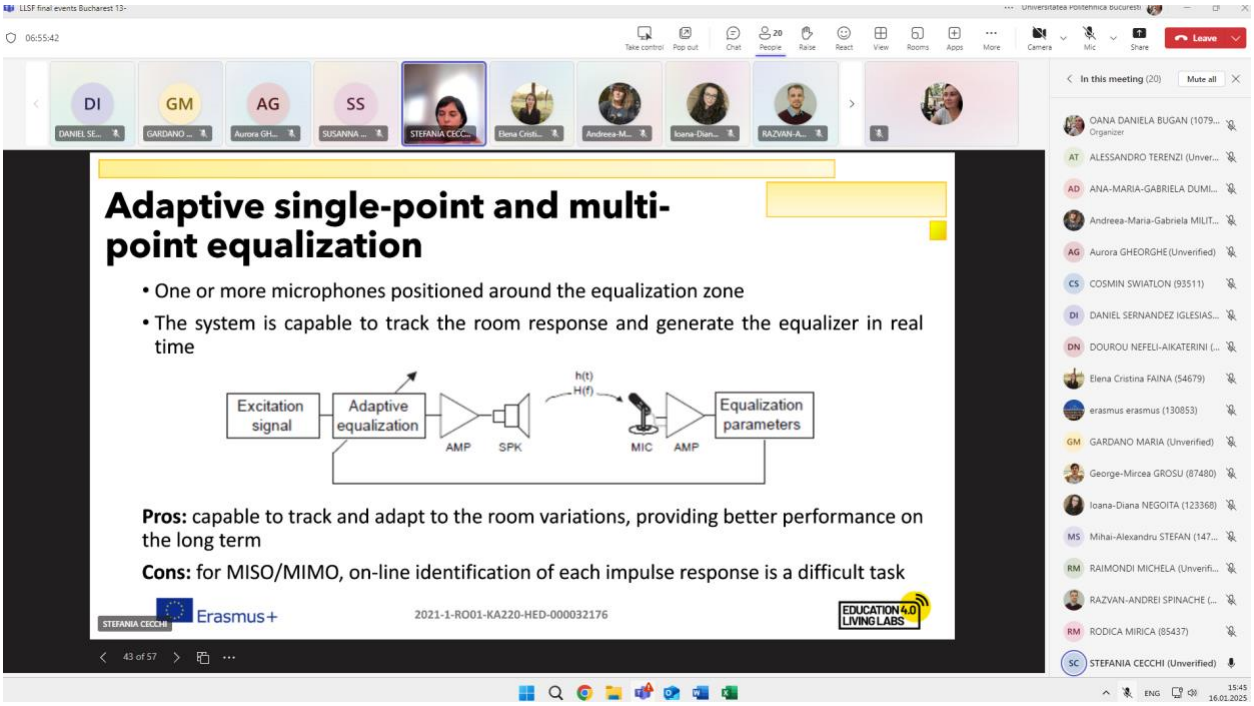
Erasmus+





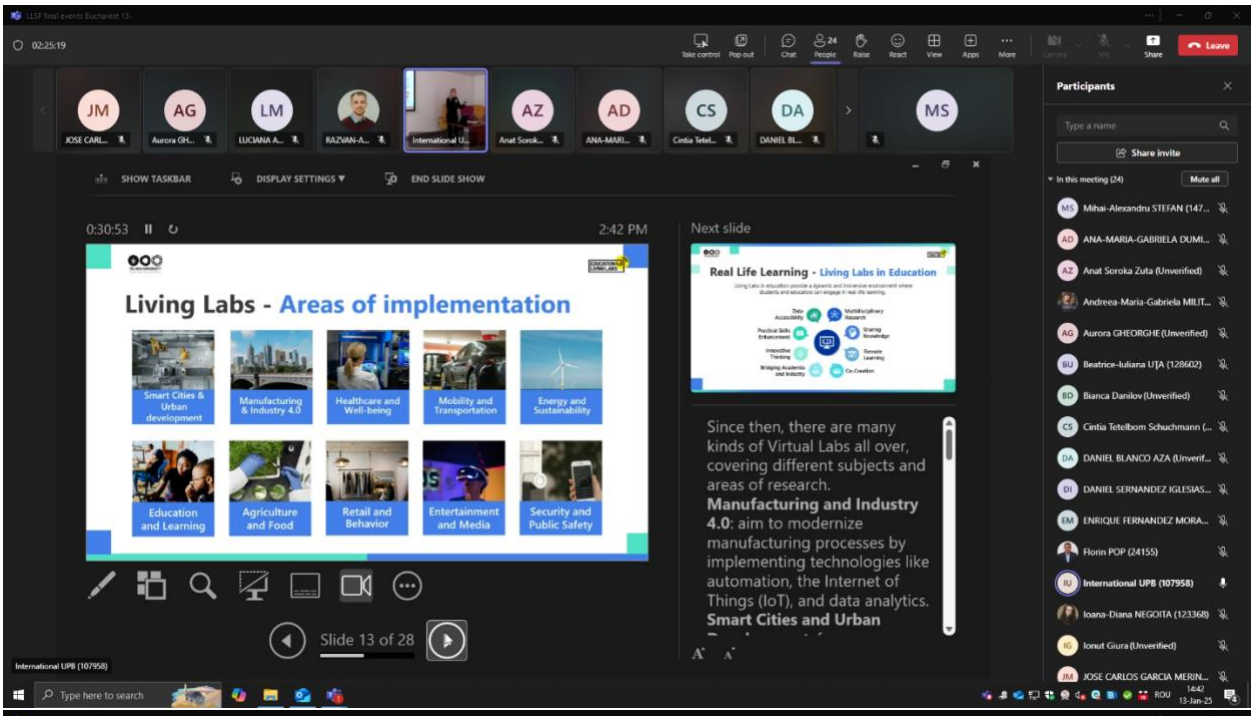
This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

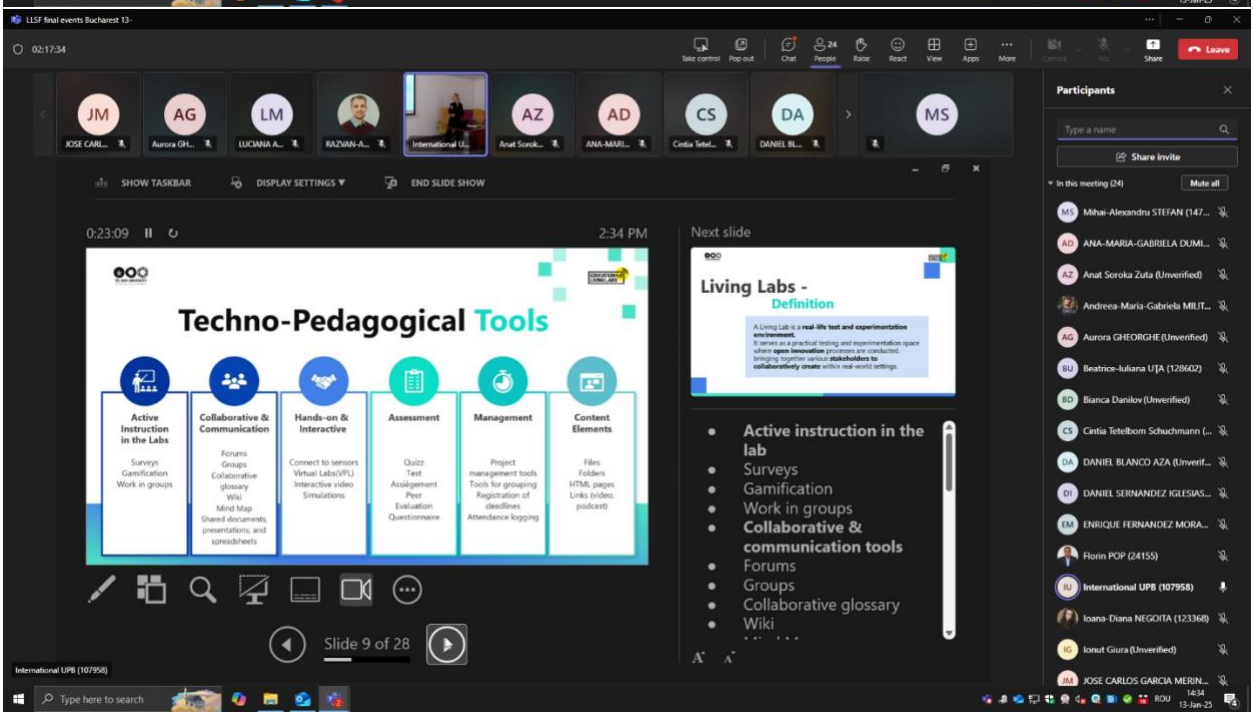
Erasmus+



This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

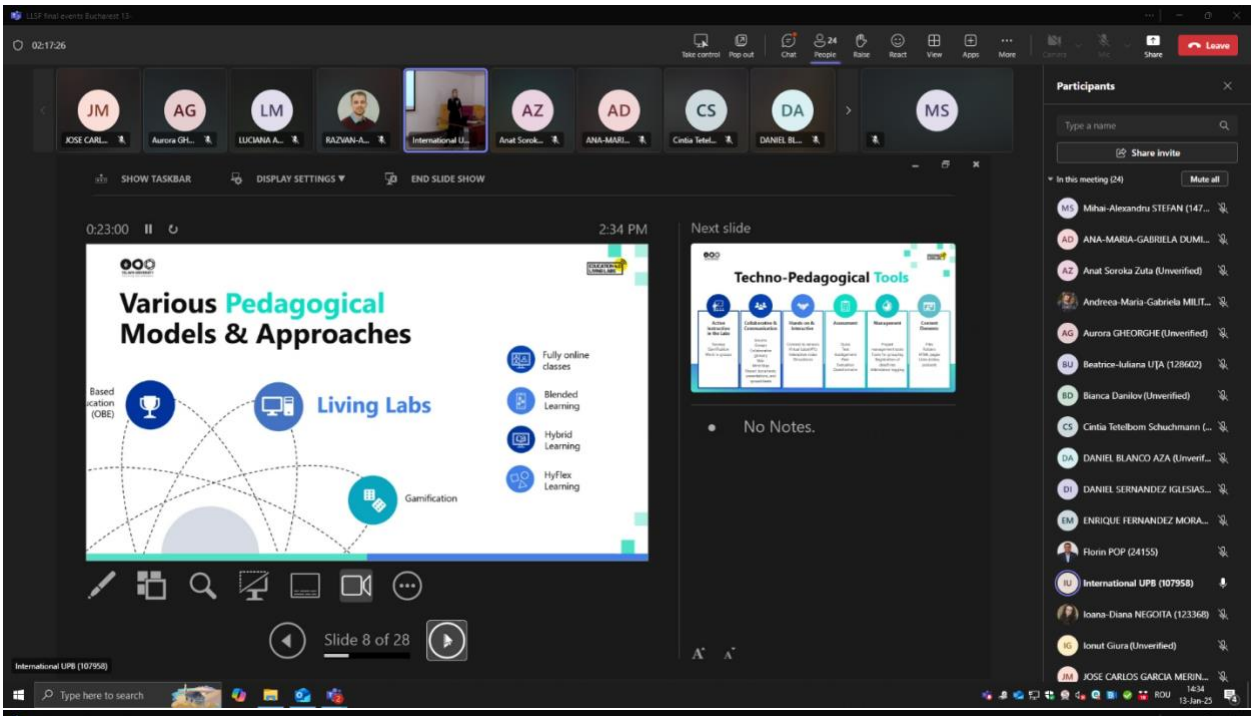
Erasmus+

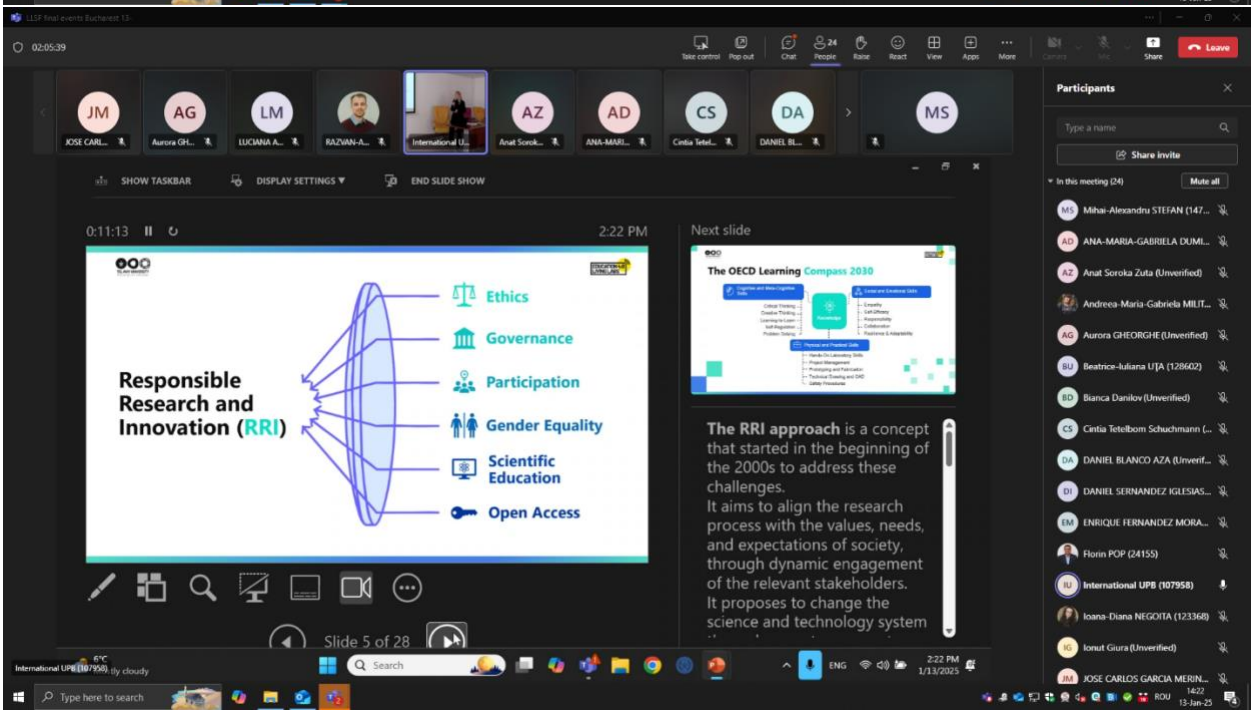




This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

Erasmus+



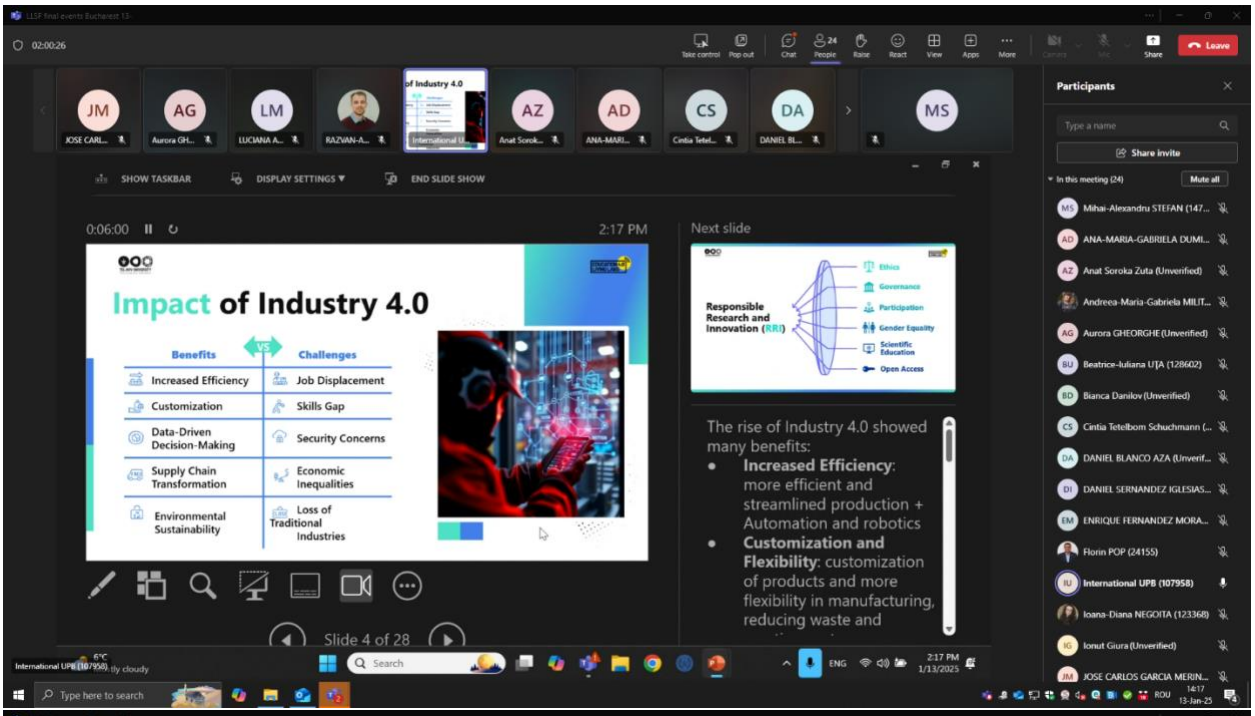


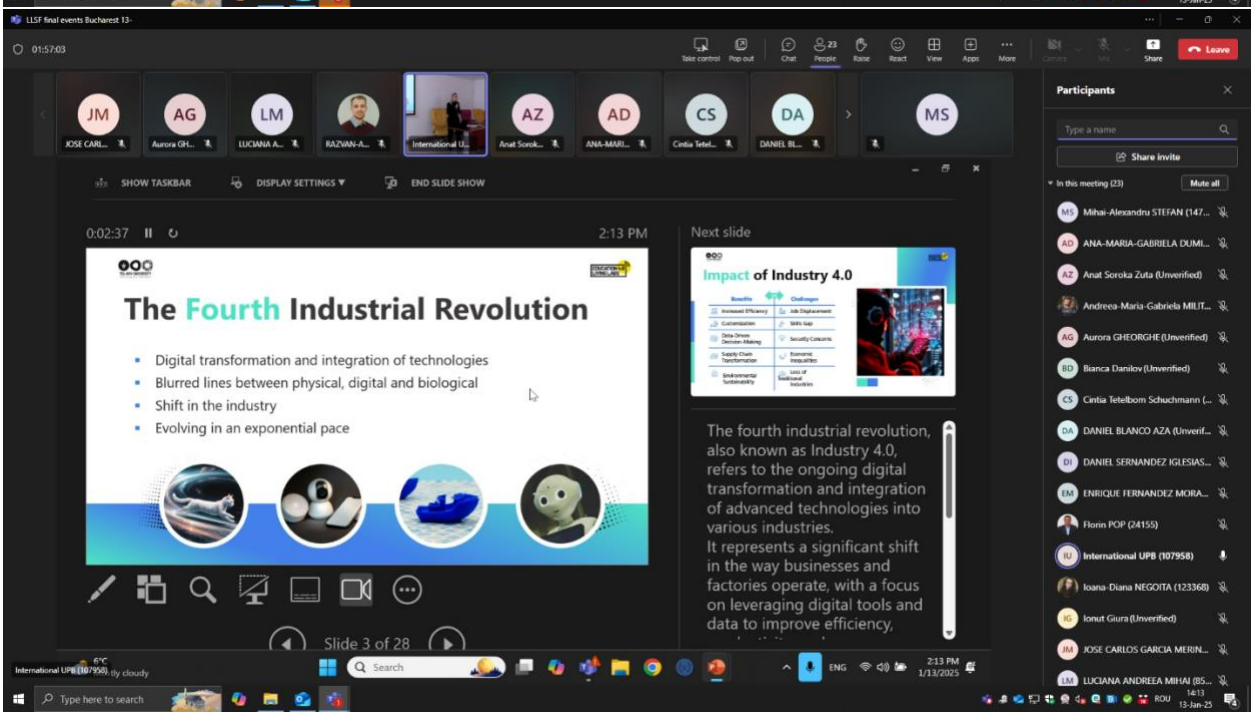
This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

Erasmus+

EDUCATION 4.0 LIVING LABS

For the students of the future.



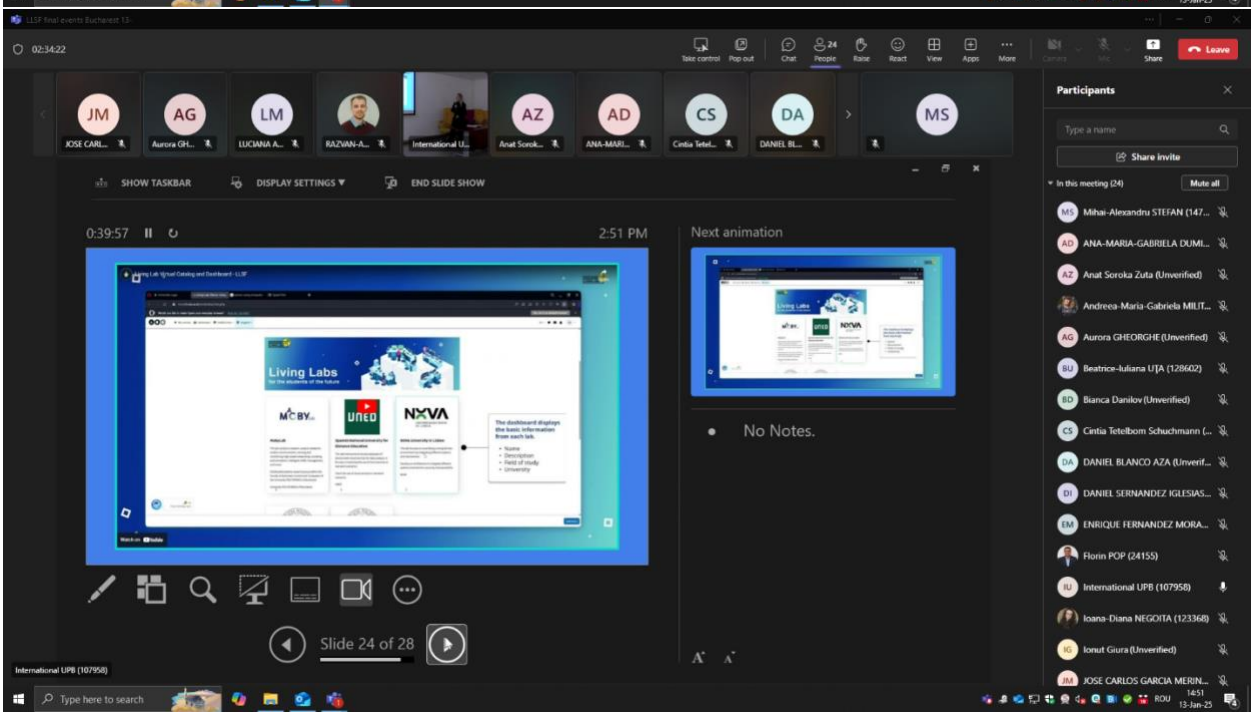


This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

Erasmus+

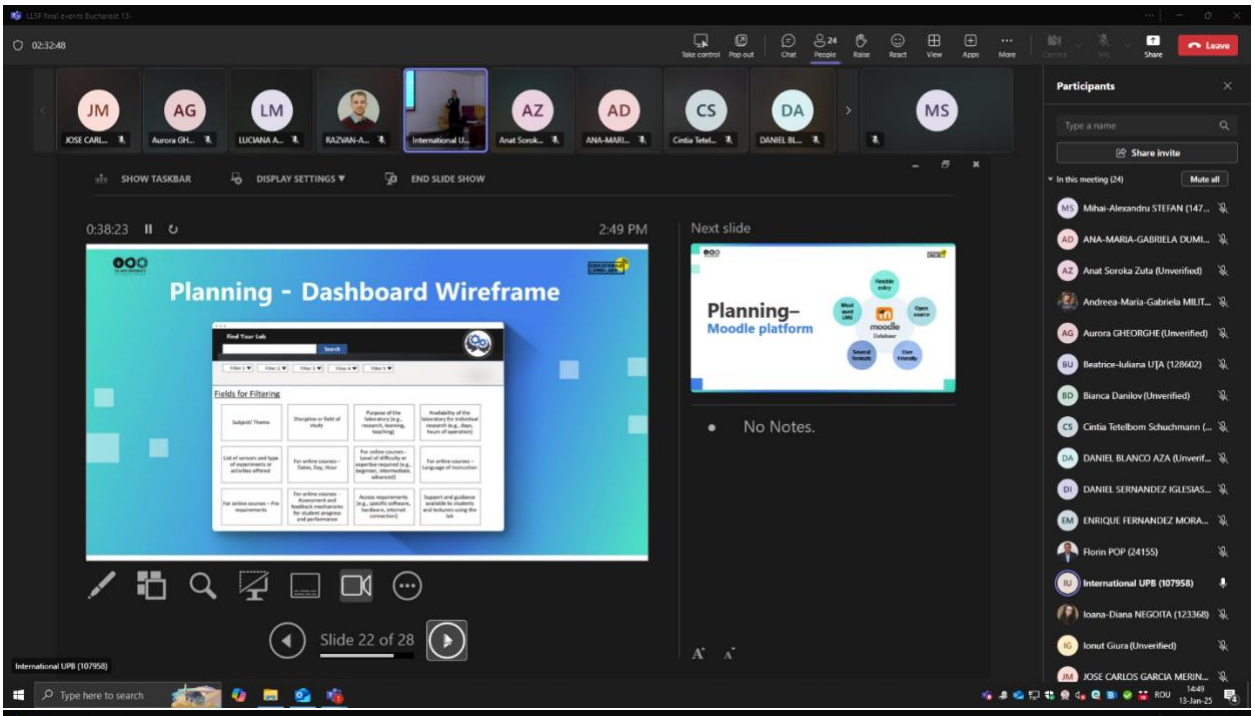
EDUCATION 4.0 LIVING LABS

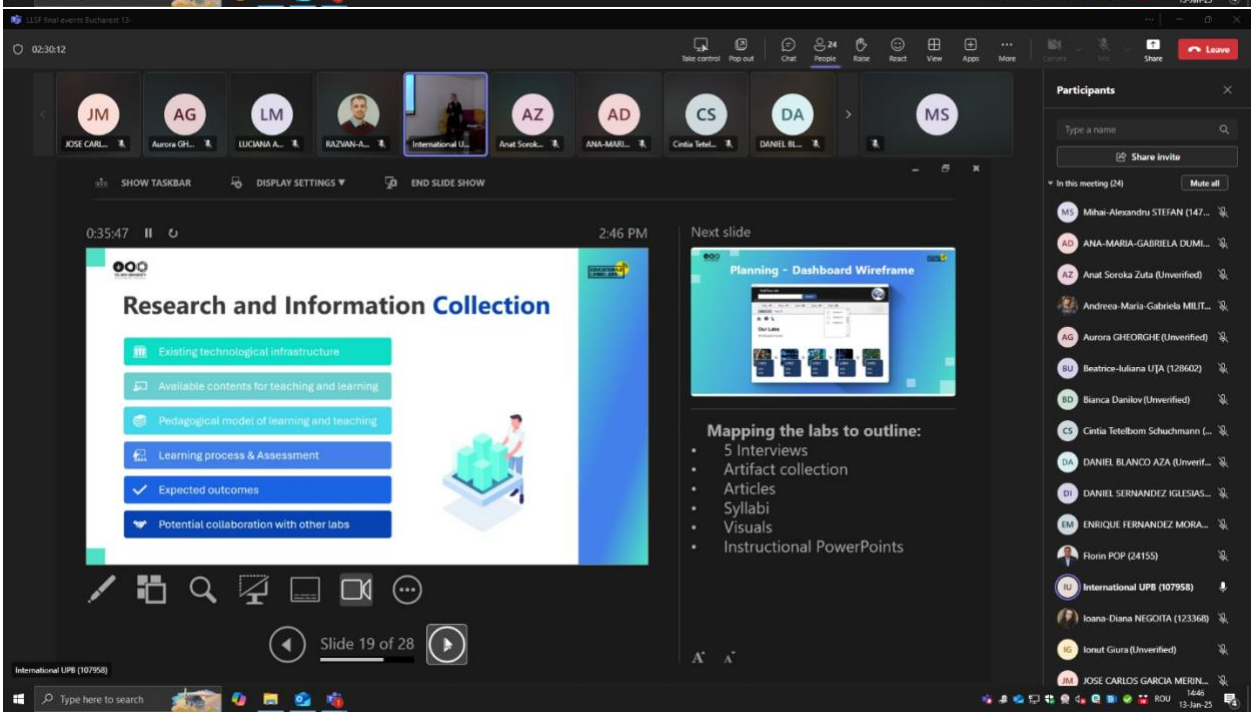
For the students of the future.



This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

Erasmus+





This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

Erasmus+