



# **DIGITALISATION OF HIGHER EDUCATION AS PART OF THE IMPLEMENTATION OF INDUSTRY 4.0 IN THE WOOD SECTOR IN SLOVENIA**

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# Goals of the presentation

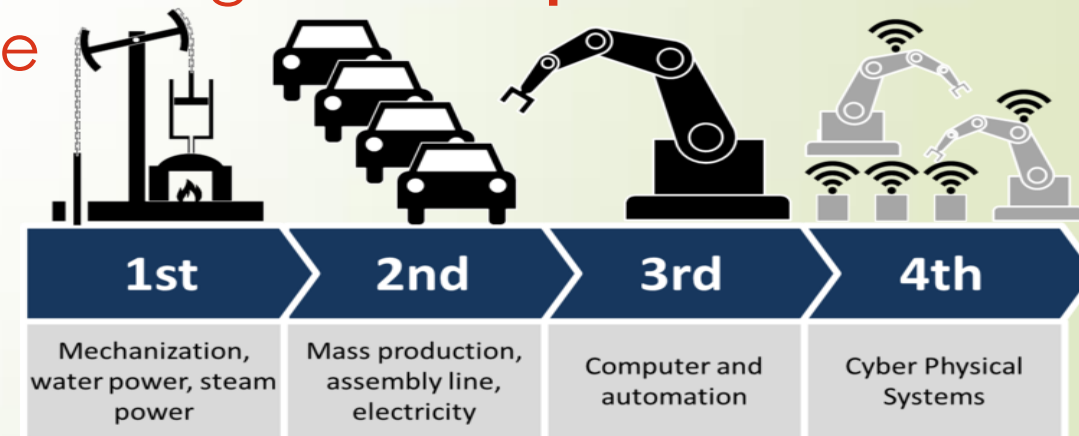
- **to show** the **development of digital era** and its' **drivers**
- **to examine** some **responses** to digital revolution and best practices for **digitalization of education**
- **to analyze** the use of **e-learning approaches and technologies** in terms of wood science higher education in Slovenia.



## Industry 4.0 / digital revolution



- It started on industry level
  - Industry 4.0 was initially introduced in 2011 in Germany
  - symbolises the beginning of the so-called Fourth Industrial Revolution
- It's not just about "industry", it's an **integral concept of digitalization** of any aspect of life



## Issue: digital competence gap

- The biggest problems arise in **digital literacy**
  - around **half of all Europeans** still do not have the digital skills



**90% of future jobs**  
will require digital skills.



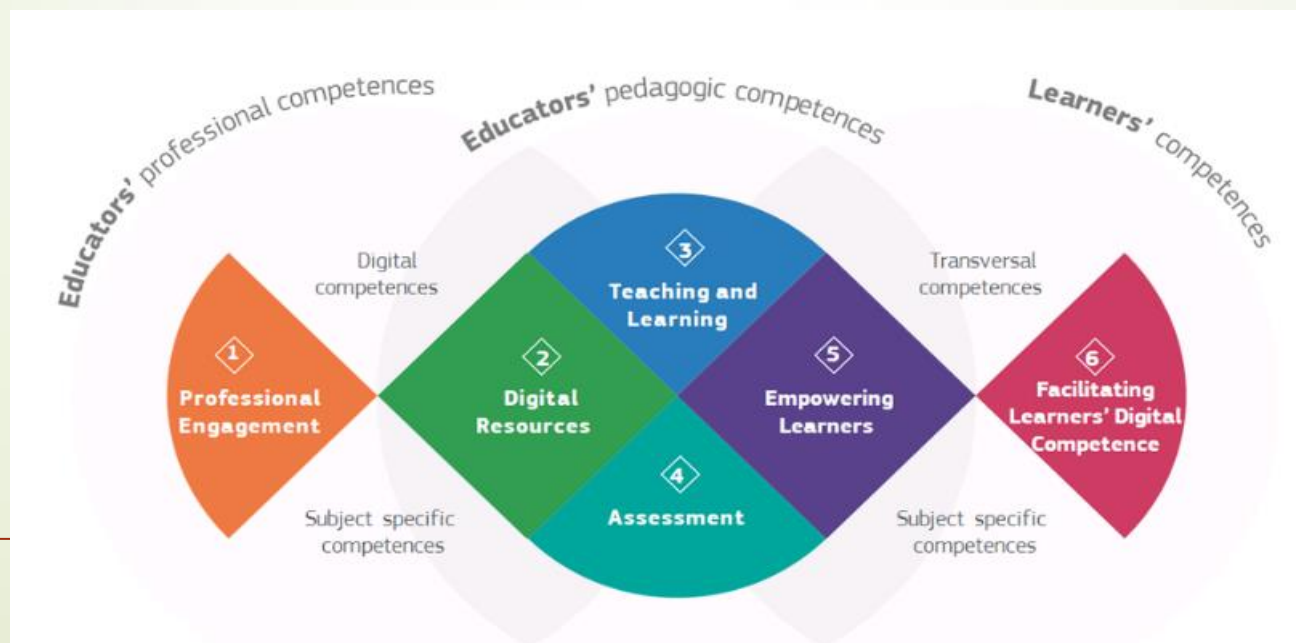
**44% of Europeans**  
lack basic digital skills.

<https://ec.europa.eu/education/sites/education/files/factsheet-digital-education-action-plan.pdf>

<https://ec.europa.eu/digital-single-market/en/human-capital>

# Digitalisation of education

- Main guidelines and standards:
  - **ICT competency standards for teachers** to help educational policy-makers and curriculum designers (Unesco, 2008)
  - **Digital Competence Framework for Educators** – to define professional and pedagogical **digital** competences of pedagogical workers (DigCompEdu, 2017)



(<https://ec.europa.eu/jrc/en/digcompedu>).

September 26<sup>th</sup> – 28<sup>th</sup>, 2018





# Best practices for digitalisation of education

- **use of ICT tools** to increase the efficiency and quality of the learning process



Kahoot!

slido



- **LMS** = Learning Management System
  - Is the technology behind online courses
  - huge number of LMS



Blackboard  
24.000.000 users

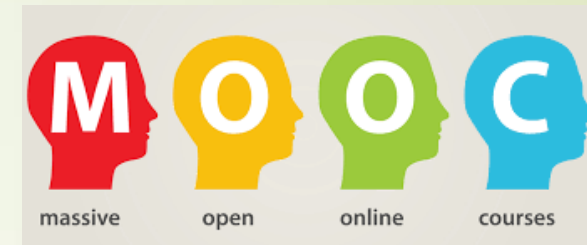


# Best practices for digitalisation of education

- the development of **freely accessible learning resources – E-LEARNING**

**MOOC** = massive open online courses

- the total number of MOOC learners worldwide is **81 million**
- over **800 universities** around the world have launched at least one MOOC



81.000.000



30.000.000



HARVARD  
UNIVERSITY

Online Learning

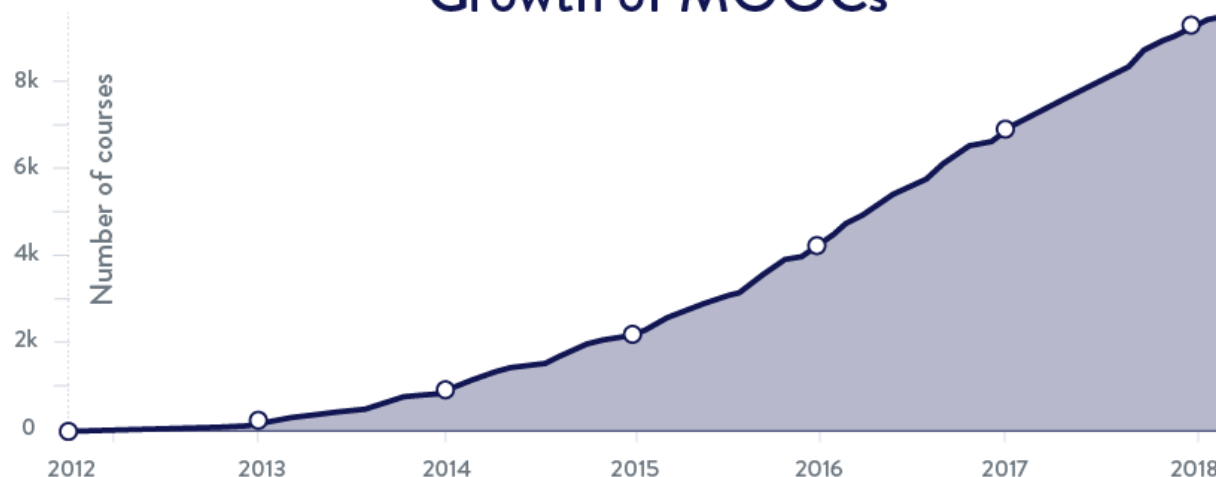


Massachusetts  
Institute of  
Technology



14.000.000

Growth of MOOCs



the Global Bio-Economy, Belgrade, Serbia, September 26<sup>th</sup> – 28<sup>th</sup>, 2018



## MATERIAL AND METHODS

**Survey / Online questionnaire:**

May 2018

	respond 2011	respond 2018	no. of questions
for pedagogical workers	20	27/41	10
for students	106	116/156	14



**Log analysis in the e-classroom (Moodle)**

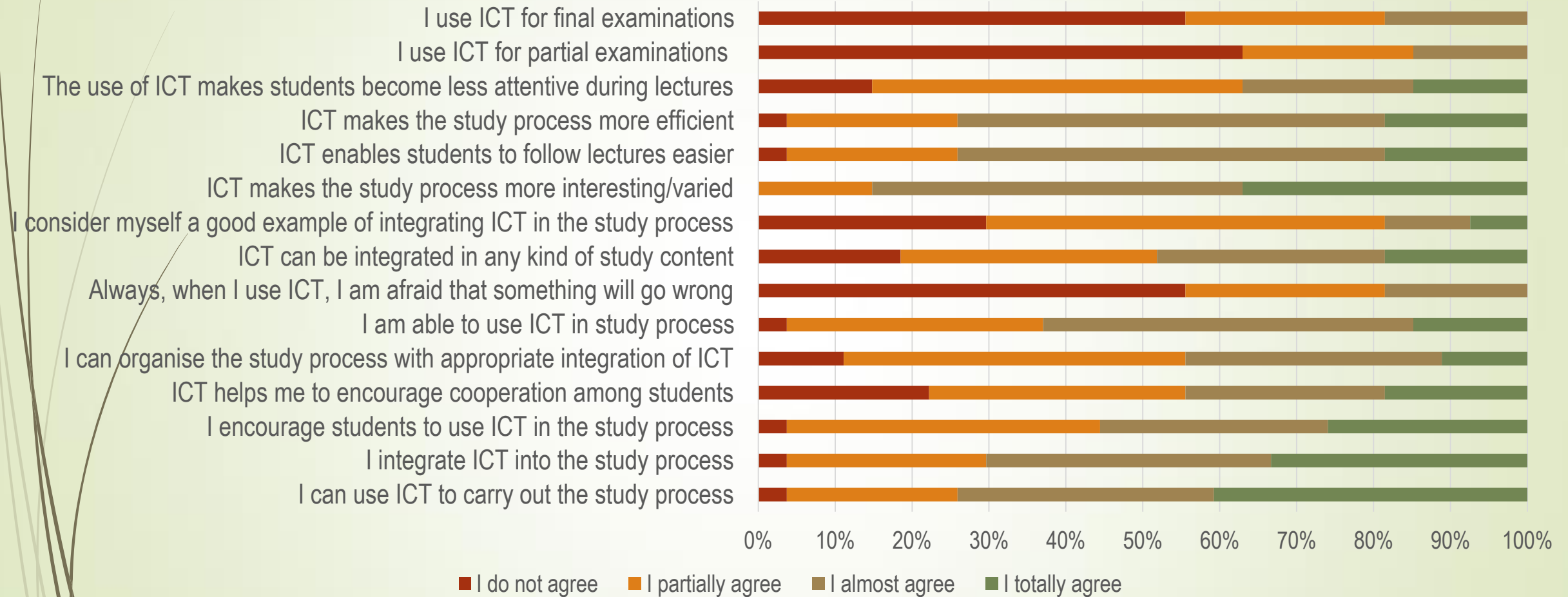
- between June 11 2017 and June 11 2018
- 260 students and 24 pedagogical workers





# CASE - RESULTS

## The use and attitudes towards ICT in the educational process



## E-classroom

- since 2010
- the **general satisfaction increased** significantly compared to 2011
- **use of individual e-learning modules has increased** considerably, while their **structure** has remained **similar**.
- The **most common uses** of e-classroom are:
  - publish study materials and grades,
  - work on assignments/workshops and
  - communicate with students (via forums and direct messages).
- **80% of the students are satisfied** with the pedagogical workers regarding their **response time**.

# CONCUSION

- Digital era is developing very fast due to ICT development
- The biggest problems: **digital literacy**
- On EU level: many **strategies** and **learning** framework initiatives
- Growth rate in **MOOCs** and/or **E-learning**

Global E-Learning Market is accounted for \$165.21 billion in 2015

- is likely to **grow by over 5%** from 2016 to **2023**, exceeding **\$240 billion** - FORBES, 2017
- is expected to reach **\$275.10 billion** **by 2022** growing at a CAGR (= Compound Annual Growth Rate) **of 7.5%** - REUTERS, 2017



# CONCUSION

- at the **Department of Wood Science and Technology** the available ICT and digital literacy are satisfactory
- gap(s):
  - video lectures and interactive materials
  - online grading tools
  - quizzes for self-assessment
  - online examinations
  - social media and
  - cloud tools;
  - the development of MOOCs is still in the initial phase

# CONCLUSION

- **Digitalisation of the study process** is not only a technological challenge, but also an organisational project with new **didactical approaches using ICT**
- Digitalisation of **education in wood sector** for:
  - formal education of young professionals,
  - informal education of employees in companies,
  - transferring the results of the research into practice,
  - internationalisation of study programs.





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## THANK YOU FOR YOUR ATTENTION

