

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

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Increasing the Use of Wood in the Global Bio-Economy, Belgrade, Serbia, September 26<sup>th</sup> – 28<sup>th</sup> , 2018



# 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.







### BACKGROUD

# Industry 4.0 / digital revolution

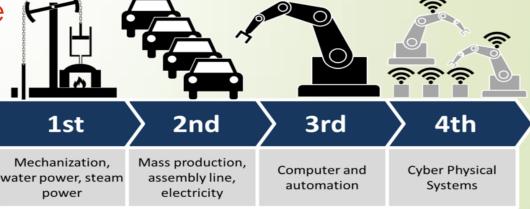


It started on industry level

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



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Photo: https://www.clustercollaboration.eu/news/strategists-guide-industry-40

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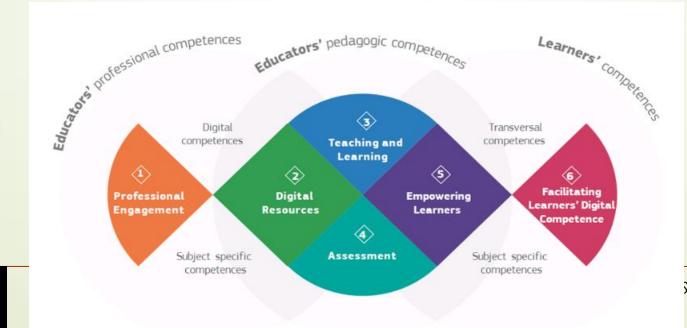
## BACKGROUD Issue: digital competence gap The biggest problems arise in digital literacy around half of all Europeans still do not have the digital skills 90% of future jobs will require digital skills. 44% of Europeans lack basic digital skills. https://ec.europa.eu/education/sites/education/files https://ec.europa.eu/digital-single-<u>/factsheet-digital-education-action-plan.pdf</u> market/en/human-capital

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# **Digitalisation** of education

- Main gudelines and standards:
  - ICT competency standards for teachers to help educational policymakers 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/di gcompedu).

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# Best practices for digitalisation of education

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



- LMS = Learning Management System
  - Is the techology behind online courses

huge number of LMS



Bb.

Blackboard 24.000.000 users



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https://www.capterra.com/learning-management-system-software/#infographic

### **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

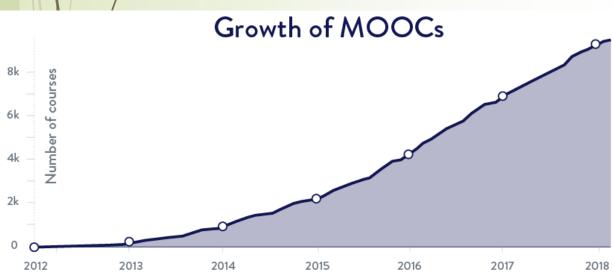
over 800 universities around the world have launched at least one MOOC

massive open online course

81.000.000

**Most Popular Courses** 

courserd





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



### **MATERIAL AND METHODS**

#### **Survey / Online questionary:** 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 ٠
- 260 students and 24 pedagogical workers

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## **CASE - RESULTS**

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

0% 40% 10% 20% 30% 50% 60% 70% 80% 90% 100% I totally agree

Luse ICT for final examinations I use ICT for partial examinations The use of ICT makes students become less attentive during lectures ICT makes the study process more efficient ICT enables students to follow lectures easier ICT makes the study process more interesting/varied consider myself a good example of integrating ICT in the study process ICT can be integrated in any kind of study content Always, when I use ICT, I am afraid that something will go wrong I am able to use ICT in study process I can organise the study process with appropriate integration of ICT ICT helps me to encourage cooperation among students I encourage students to use ICT in the study process I integrate ICT into the study process I can use ICT to carry out the study process

I do not agree

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## **CASE - RESULTS**

# **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 assigments/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

delete

E-LEARNING

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*Biotechnical* Faculty

- 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 <u>\$240 billion</u>
  FORBES, 2017
- is expected to reach <u>\$275.10 billion</u> by 2022 growing at a CAGR (= Compound Annual Growth Rate) of 7.5% - REUTERS, 2017

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PHOTO:\_https://www.reuters.com/brandfeat ures/venture-capital/article?id=27986

## 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



CONCUSION

- 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

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