EDUCATION IN DIGITAL ERA BETWEEN ANALYSIS OF PREDICTABILITY AND CONSOLIDATION OF RESILIANCE

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ABSTRACT

The educational institutions and the entire education system were heavily affected by the Covid-19 pandemic, which forced us to adapt favourably to unfavourable conditions. During the crisis, educational practices were quickly reconfigured, from face-to-face work to the online environment. This has shown that teaching, learning and technology are part of an ecosystem, that of digital education.The aim of this research is to analyse and highlight the benefits and limits of the world's Massive Open Online Courses (MOOCs) systems and their implementation in Romania, facilitating the internationalization of higher education establishments. The objectives of the article are to investigate the relations between the elements provided by the sample of 67 courses conducted through the Coursera platform, in June 2020, the „Human skills" field. As research methods, the authors used descriptive methods, correlation coefficients, regression analysis and performed statistical tests using the SPSS program. The results of the research responded to the authors' assumptions that there are significant correlations and a certain degree of association between variables. The authors' conclusion is that we need to build together a new education system, based on modern technologies, based on digitalisation, adaptable, correlated with the labour market, that strengthens resilience and is predictable.

KEYWORDS: *digital age, education, learning platform, predictability, resilience, technology.*

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1. INTRODUCTION

Who could have thought a year ago that we could be present anywhere, anytime, online? Over the past decade, technological development has seen a very great development (Saettler, 1968), and our next generation is already dependent on the internet and on-demand information, just a click away. The Internet of Things (IoT) affected the global educational institution a year ago, from nurseries, kindergartens, primary schools, secondary schools to high schools and universities.
This requires adapting the education system to new technologies. Experts have shown that new digital technologies (Kaplan & Haenlein, 2016) must be used in the education system to make teaching more attractive and graduates competitive in the labour market. Until the Covid-19 crisis, the implementation of new technologies was done on a voluntary basis, with each country or university having its own strategy. After the crisis, it was necessary for face-to-face activities to be transferred online. It was a challenge for all categories involved: teachers, students and parents. Some had basic digital concepts or had very few. A major problem facing the education system (Curaj & others, 2020) was access to the internet infrastructure, but also the lack of a computer, laptop, tablet or mobile phone from the equipment of the parties involved.

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Building on these realities, specialists believe that better cooperation is needed, between all the actors involved, to achieve a modern school that uses digital technologies – „SMART-Edu - Modern Accessible School based on Digital Resources and Technologies" and meets the following needs: accessibility, connectivity, community, digital educational ecosystem, innovation and sustainability. We need to build together a new, modern, digitalised education system that is adaptable, linked to the demands of the labour market, that strengthens resilience and is predictable Resilience is the ability of people (Greitens, 2017) to adapt favourably to adverse situations. Since the 1960s, the term has undergone several changes. Initially, it was thought to be a characteristic with which the human being was born, then the individual, social, familiar, and cultural factors were analyzed. Lately, specialists have proposed changing the term of resilience in resilient processes. Studies show that resilience is a real process, involving several factors: family, friends, environment, economic situation. Predictability is defined by actions, facts or normative acts that can be anticipated by specialists, business environment, citizens.

A person is predictable when one can predict his or her behaviour in the future on the basis of previous studies. In the case of the human-computer interaction study, predictability refers to predicting the consequences of a user action (Diebold & Kilian, 2001), based on the current state of the system. Today, in a world affected by the Covid-19 pandemic, the analysis of the predictability of the education system in Romania is necessary to be done urgently because the future is of the digital age, and the new skills and abilities acquired by young people are based on specializations, curricula, courses, disciplines, syllabus (Downes, S., 2008), adapted correctly and as quickly as possible to the labour market and the trades of the future. People, but especially young people, have the ability to adapt favourably to adverse situations and resist new changes. Research in the field (Saettler,1968) shows that between 1890 and 1920 distance education was born, first course by correspondence and then on radio and television. In the 2000s, with the expansion of the Internet, distance education developed, by increasing its online presence, as well as by developing MOOC, which is an online course with unlimited participation and open access via the Internet. It offers interactive courses (Bell, 2011) with user forums to help community interactions among students and teachers, as well as immediate feedback on quick questions and themes. MOOCs are a new development of distance education (Yousef et al., 2015), which was introduced in 2006 and has developed since 2012.The term MOOC was invented in 2008 by Dave Cormier of Prince Edward Island University as a result of a course called Connectivism and Knowledge Connective (also known as CCK08).

In addition, other e-learning platforms have emerged: Khan Academy, Udemy and Alison. As MOOCs developed, different conceptions of the platform emerged: some focused on a connectivist philosophy and others on traditional courses (Creţu et al, 2013). Specialists have proposed two terms „cMOOC" and „xMOOC" to make a difference. The „Chronicle of Higher Education" conducted a survey among teachers who taught MOOC, on a sample of 103 respondents. The conclusion was that the teachers spent over 100 hours before starting the teaching with the realization of the necessary teaching materials, and between 8 and 10 hours per week for feedback on the topics proposed on the forums. The results of these efforts were quantified in the large number of students enrolled in the course, about 33,000, but only 2,600 passed, and the teacher was assisted in the course by 1 assistant teacher. Compared to traditional courses (Șerban et al, 2020), online courses are time consuming and require additional skills offered by IT specialists, videographers, e-learning platform specialists, who use cloud computers and educational software (Lectora, Elicitus, etc.). Courses taught in the MOOC (Pappano, 2014) system must meet online learning standards. From the reports of the technology teachers for the creation of the MOOC courses, it results that at least 19 people are needed to work from the idea phase of the course to teaching and evaluation. The aim of this research is to analyze the benefits of online education systems in the world and their implementation on a large scale in Romania. Through the participation of Romanian universities in the Coursera platform, the internationalization and

adaptation of the courses offered in the digital age, to the new skills and abilities required on the labor market, in the current context of the Covid-19 pandemic, which involved rapid change (back with 9 months) to the online education system with synchronous or asynchronous teaching.
The paper contains (Dinu et al., 2017) four sections: presentation of the concept of online courses through the Coursera platform in the literature; research methodology for investigating the correlations between elements and the degree of association of variables; results and discussions based on research and research conclusions, limits and directions. The authors investigated the relationships between the elements provided by the Coursera database, in June 2020, on a sample of 67 courses offered for one of the five fields, namely the field „Human skills", using the program SPSS (Statistical Package for the Social Sciences), for statistical processing.

2. ONLINE COURSES IN THE LITERATURE REVIEW

According to the New York Times, 2012 (Pappano, 2014) was declared the MOOC year due to the emergence of a large number of providers in this field, very well positioned financially, associated with well-rated universities in the United States, including Coursera, Udacity and edX (Hey, 2016).
Since 2013, many prestigious universities on all continents have slowly but surely joined this type of learning, as if anticipating the coronavirus pandemic, which was to appear at the end of 2019 and affect the entire population. of the globe. Therefore, we are witnessing the birth of a new industry (Adamopoulos, 2013) with a complex structure, „consisting of MOOC suppliers, companies, universities, non-profit organizations, society, other stakeholders" (Annex no. 1). Stanford University launched in 2011 the first online course on „Introduction to Artificial Intelligence", a course launched by Sebastian Thrun and Peter Norvig, which managed to gather 160,000 students. Soon Andrew Ng and Jennifer Widom launched two more courses, much appreciated among the participants. Following the recorded results, the 2 big companies in this industry appeared, namely Udacity (Carr, 2013), founded by Thrun and Coursera founded by Daphne Koller and Andrew Ng. The Massachusetts Institute of Technology (MIT) created in 2012 MITx, a non-profit company, and launched the first 6002x course, „which later joined 2 other prestigious universities, namely Harvard University and Berkeley University, and the name of the group has been changed to edX". EdX has partnered with Google. Tsinghua University, which uses its own platform, has joined this consortium. In 2013 alone, EdX offered 94 courses offered by 29 universities around the world.
The consortium grew stronger with the addition of other prestigious universities, Stanford University, whose Class2Go platform merged with edX and created the XBlock SDK, a common open source platform. Coursera Company, which developed its own platform, offered „325 courses by March 2013, of which 30% in science, 28% in arts and humanities, 23% in information technology, 13% in business and 6% in mathematics". Udacity offered 26 courses at that time. The number of courses has increased a lot since then: in „2016, edX offered 820 courses, Coursera 1,580 courses and Udacity over 120 courses". The most popular courses on the Coursera platform are „psychology and philosophy", where student feedback and high completion rates show that they are as good as math and science courses.
According to FutureLearn, the agreement between the International English Language Testing System (IELTS) and the British Council for English language tests has led to the enrollment of over 440,000 students. Very quickly, the first innovative courses appeared (Downes, 2008), respectively „CMSO, CCK08 and ds106", which focus on digital storytelling. Other universities launch their own platforms, such as: University of Helsinki „which offers programming courses for more than 8,000 participants, Galileo University launched" in 2012 the first MOOC in Latin America, Ball State University, taught the course „The genre through comic books" University of Miami launched in 2012 the first MOOC high school, with a biology profile, for students (Vihavainen et al., 2012) students in the discipline of biology, Duke University launched the course of Social Sciences and Literature, University of Carolina launched Skynet University in 2013, which offers introductory

astronomy courses to MOOC students. In July 2013, the University of Tasmania launched the „Understanding Dementia" course „which had a completion rate of 39%". Recognized by Nature magazine, Hong Kong University of Science and Technology launches the first MOOC in Asia. The first steps in physiotherapy were made in the UK, when Physiopedia launched the first MOOC related to professional ethics, in collaboration with Western Cape University in South Africa, and MIT and Stanford University initiated MOOC courses in Computer Science and Electrical Engineering. In 2013, Coursera „launched the first free e-books for several courses, in partnership with an online textbook rental company Chegg". So, 2013 is the year in which most courses are launched, as the first appearance from robotics to physics, from biology to statistics, from finance to psychology. In 2014, the „first paid master's degree in IT services ($ 7,000) was launched by the Georgia Institute of Technology".

The first business courses were used to use „case studies in the company, along with university research, to demonstrate that people and innovation are the key to success", according to the MOOC FutureLearn in the UK. If 2015 is the debut year of the online courses in medicine and art, offered by the University of Cape Town, on the Futurelearn platform, but also of the first MOOC (OpenClassrooms) bachelor's degrees in multimedia project management, 2018 is the year of the first course game on edX , from Brown University. Over „1.5 million people were enrolled in courses through the Coursera, Udacity or edX platforms by 2012". There was a record enrollment in 2013, when the Coursera platform enrolled „approximately 2.8 million students, and in October 2013 exceeded 5 million, while edX reached 1.3 million". The first studies on students appear at Stanford University, which shows that the number of men enrolled is higher than the number of women. The problem arises for students who do not speak English as their mother tongue. The possibility of subtitling courses in almost all spoken languages was created. MOOCs face school dropout (Prpić et al., 2015), according to analyzes conducted by Katy Jordan in 2015, the number of students enrolled is very high, but completion rates drop to 3-5%, according to Coffrin et al., In 2012, at 7-9%, after Coursera. However, experts say that the average MOOC completion rate is not a relevant, sufficiently objective indicator. According to Russian researchers Semenova, T. V. and Rudakova, L. M (2016), there are three important factors that determine school dropout: education, gender and MOOC experience. Approximately 18% of students with higher education complete the online course, while only 3% of those with secondary education complete, and of those who graduated the course, 65-80% have at least one experience of using the online learning platform. The percentage of men who attend the courses is 6-7 percent higher than that of women, who also take care of the family. Completion rates for online courses are lower than for traditional courses. The issue of MOOC efficiency remains a topic that needs to be addressed. The design of the training is different for MOOC courses compared to traditional ones. A MOOC course is designed to be „a challenge" according to Thrun, „without lecture, and the duration of a video should not be longer than 6-9 minutes". A combination of traditional and online learning methods (hybrid methods) can improve student performance.

The same cannot be said for online evaluations (Parr, 2013), which are different from the classic ones. Exams can be scheduled at regional testing centers or can be given at home or in the office, using webcams or monitoring mouse clicks. Studies in the state of Virginia show that 32% of students failed to adapt and withdrew from online courses, compared to 19% withdrawals from traditional courses. The mentoring system (Alraimi & others, 2015) could „be used to reduce the dropout phenomenon as well as the use of techniques to maintain the connection with students". In terms of information architecture, courses for synchronous learning are different from courses for asynchronous learning.

In conclusion, MOOCs are seen as an engine of the new education industry in higher education (The Chronicle of Higher Education, 2021). Experts say that many services offered in traditional universities will become separate and sold to students individually or in new packages.

2. RESEARCH METHODOLOGY

The year 2020 was a year marked by the Covid-19 pandemic and, at the same time, by the need to improve online teaching. In order to increase the international visibility of the activity of prestigious Romanian universities, the access of institutions, students and professors to the online academic platform Coursera (North American educational technology company) for Campus (Silicon Valley - Mountain View, California, USA) was facilitated. In April 2020, the Coursera platform „offered online courses in various fields of interest for 68 million registered students, all exclusively online, with certification, professors from over 165 universities, over 40 partner industries and over 6,900 employees in business, government (Annex no.2)". Coursera is a „global educational platform, initiated by two Stanford University professors, Andrew Ng and Daphne Koller, which offers free courses for everyone". By June 2020, more than 5 million students worldwide have studied at least one course on this platform, free of charge. The courses offered on this platform (Annex no. 3) are from all fields (mathematics, accounting, biology, medicine, tourism, computers, cyber security, sales, marketing, geology, etc.). In March 2020, when the Covid-19 epidemic began, Coursera initiated collaborations with universities around the world to improve its online performance. The data provided by the Coursera platform in June 2020 (Annex 4) are relevant, namely „over 10,000 online study programs launched, with 1.3 million students enrolled in these programs, 7.5 million enrollment in courses and over 20 million hours of virtual learning environment". The Campus Coursera program currently includes „28 universities (Annex 5) from 5 EU Member States (HEC Paris, INSEAD, ENS, Sciences Po Paris, ESCP Business School, Imperial College London, ESSEC Business School, Copenhagen Business School, University of Copenhagen, Lund University, Sapienza University of Rome, Bocconi University of Milan, Erasmus University of Rotterdam)". The approach of this research consists in analyzing and highlighting the benefits of online education systems in the world and their widespread implementation in Romania. By participating as many prestigious universities in Romania as possible in the Coursera academic platform, a major goal can be achieved, that of internationalization, by adapting the curricula offered in the digital age to the new skills needed on the labor market, which has been severely affected. in the last period. It is very important that universities during this period adapt their curricula to the new requirements imposed by Covid - 19, in the context of the growing need for jobs that require relevant skills. In addition to these, 300 million full-time jobs are at risk due to the economic impact of the pandemic. It is expected that „42% of jobs will have a completely different qualification by 2022, a lower percentage, 50% of employers believe that universities are preparing students to meet the new demands of the labor market and only 9% of principals say that their leaders have the necessary digital skills", according to the report World Economic Forum Jobs of the Future Report; Deloitte, International Labor Organization, World Economic Forum: Digital Transformation.
The Coursera platform provides a wide range of information for June 2020, on five areas of interest, namely „business, technology, data, human skills, industry", according to the table below:

Table 1. Number of courses offered through the Coursera platform

Coursera	**Nr. courses offered**
Bussines	978
Technology	828
Date	658
Human Skills	67
Industry	1.143
Total	**3.674**

Source: Coursera Platform, adaptation by authors (June 2020)

The name and number of industries broken down by category is shown in the figure below. The first place is occupied by the health and life sciences industry, followed by professional services, technology, public sector, etc.

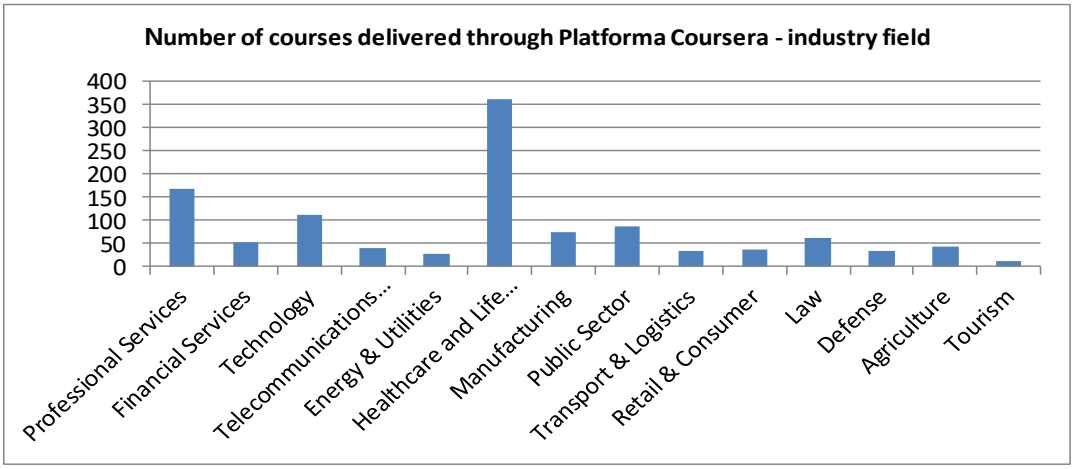

Figure 1. Courses – industry – Coursera
Source: Coursera Platform, adaptation by authors (June 2020)

The purpose of the research is to investigate the relationships between the elements provided by the database of the academic platform Coursera, in June 2020, on the field "Human skills". The authors used the SPSS program for statistical processing. The data provided by the Coursera platform for the 67 courses are: skills, acquired skills, course name, university/partner industry, level of difficulty, average number of hours, course evaluation, course link, course description, specialization, specialization link, interval hours, subtitle language, course language, domain, subdomain, course ID (Annex no. 6).
The number of students enrolled in the first 10 courses, in the field "Human skills", according to the evaluation of the course is surprising: from 9,711 to 2,676,601 students.

Table 2. Top 10 courses according to the evaluation criterion of the course and the number of enrolled students

Competency	Skill	Course Name	University / Industry Partner Name	Average Hours	Course Rating	Course URL	Enrolled students
Human Skills	Conflict Management	Negotiation skills: Negotiate and resolve conflict	Macquarie University	14.4	5	https://www.coursera.org/learn/negotiation-skills-conflict	11.952
Human Skills	Negotiating	Negotiation skills: Negotiate and resolve conflict	Macquarie University	14.4	5	https://www.coursera.org/learn/negotiation-skills-conflict	11.952
Human Skills	Adaptability	Adapt your leadership style	Macquarie University	18.2	4.92	https://www.coursera.org/learn/leadership-adapt-your-style	16.038
Human Skills	Communication	Multimodal Literacies: Communication and Learning in the Era of Digital Media	University of Illinois at Urbana-Champaign	15.3	4.91	https://www.coursera.org/learn/multimodal-literacies	9.711
Human Skills	Adaptability	Introduction to Self-Determination Theory: An approach to motivation, development and wellness	University of Rochester	13.4	4.91	https://www.coursera.org/learn/self-determination-theory	29.803

Competency	Skill	Course Name	University / Industry Partner Name	Average Hours	Course Rating	Course URL	Enrolled students
Human Skills	Resilience	Build personal resilience	Macquarie University	12	4.9	https://www.coursera.org/learn/build-personal-resilience	24.890
Human Skills	Critical Thinking	Think Again III: How to Reason Inductively	Duke University	14	4.85	https://www.coursera.org/learn/inductive-reasoning	30.973
Human Skills	Creativity	Strategic Innovation: Building and Sustaining Innovative Organizations	University of Illinois at Urbana-Champaign	15	4.81	https://www.coursera.org/learn/strategic-innovation-building-and-sustaining-innovative-organizations	34.054
Human Skills	Collaboration	Introduction to Negotiation: A Strategic Playbook for Becoming a Principled and Persuasive Negotiator	Yale University	26.8	4.81	https://www.coursera.org/learn/negotiation	326,445
Human Skills	Negotiating	Introduction to Negotiation: A Strategic Playbook for Becoming a Principled and Persuasive Negotiator	Yale University	26.8	4.81	https://www.coursera.org/learn/negotiation	326,445
Human Skills	Adaptability	Learning How to Learn: Powerful mental tools to help you master tough subjects	University of California San Diego	11.8	4.8	https://www.coursera.org/learn/learning-how-to-learn	2,676.601

Source: Coursera Platform, adaptation by authors(June 2020)

To achieve the research goal, we investigated the following 10 nonnumerical variables from the Coursera database, June 2020, for the "Human skills" area of competence: ability, university/industry partner, course name, course description, specialization, acquired skills, specialization description, language subtitling, domain and subdomain. In this field we have identified:

- ✓ Skills such as: Adaptability, Communication, Collaboration, Creativity, Critical Thinking, Conflict Management, Emotional Intelligence, Learning, Teamwork, Negotiation, Resistance, Problem Solving, etc. ;
- ✓ offered in the 67 courses, of which we mention: Multimodal literacy: Communication and learning in the digital media era, Communication strategies for a virtual age, Design thinking for innovation, Strategic innovation: Building and supporting innovative organizations, Creative collaboration, Change Perspectives, Creative Thinking: Techniques and Tools for Success, Critical Thinking for the Information Age, Thinking Model, Intelligence Tools for the Digital Age, Thinking Again I: Understanding Arguments, Delivering Useful Feedback, Inspiring Leadership Through Intelligence Emotional, Influencing People, Inspiring and Motivating Individuals, Exploring Emerging Technologies for Successful Lifelong Learning, Introduction to Learning and Lifelong Learning Transfer, Mindshift: Break Through Barriers to Learning and Discovering Hidden Potential, Problem assessment, Build personal resilience;
- ✓ grouped on 3 teaching levels (beginners, intermediate, advanced);
- ✓ the courses are delivered by prestigious universities, such as: Macquarie University, University of Illinois at Urbana-Champaign, Duke University, Yale University, University of California San Diego, University of Colorado Boulder, University of Geneva, University of Michigan, University of Washington, UNSW Sydney (The University of New South Wales), ESSEC Business School, National Research University Higher School of Economics, IESE Business

School, Imperial College London, ESSEC Business School, Rice University, HEC Paris, University of Toronto, University of Rochester, etc .;

- ✓ grouped by specializations: Human Resource Management and Leadership, Organizational Leadership, Innovation: From Creativity to Entrepreneurship, Business English for Non-Native Speakers, Communication Skills for Engineers, Dynamic Public Speaking, Influencing: Storytelling, Change Management and Governance , Entrepreneurship: Launching an innovative business, Innovation: From creativity to entrepreneurship, Top people and teams, Adaptation: Career development, etc.;
- ✓ in fields such as: Business, Social Sciences, Life Sciences, Personal Development, Language Learning, Arts and Humanities;
- ✓ and sub-domains such as: Essentials for business, Leadership-and-management, Education, Psychology, Personal development, Marketing, Economics, Learning-English, Entrepreneurship, Music and art, Business strategy;
- ✓ the courses are taught in English, and the subtitling is done in the following languages: French, Italian, Vietnamese, Russian, Portuguese, Persian, Hebrew, Arabic, Spanish, Estonian, Romanian, Polish, Dutch, German, Chinese, Greek, Ukrainian, Hungarian, Serbian, etc..

The objectives of the research are to investigate the relationship between the following elements: skills and field; university/partner industry and course description; course name and field; specialization and skills acquired; specialization and description of specialization; domain and subdomain. It is expected that there will be strong, moderate, weak or zero correlations between the above mentioned variables and an acceptable or strong degree of association, according to Colton's rules.

We intend to test the following research hypotheses:

Hypothesis 1. There is a correlation between the specialization and the description of the specialization.

Hypothesis 2. There is a correlation between the university/partner industry and the course description.

As methods of analysis, we will use descriptive methods, correlation coefficients, regression analysis and perform statistical tests necessary to ensure high accuracy of results. Statistical processing is performed using the SPSS statistical program. For this stage of our research we will use coding as a tool for measuring variables that are continuous and normally distributed.

3. RESULTS AND DISCUSSIONS

According to Hypothesis 1, the Pearson correlation coefficient (figure no. 2) shows statistically significant results between specialization and specialization description, the correlation coefficient resulting in the table is positive, amounting to 0.643, which reflects a moderate correlation, with a good degree of association, at a degree of significance of 1%, on a sample of 67 observations.
We will further check if there is a link between the dependent variable – Specialization Description and the independent variable – Specialization. We choose as a graphical representation, the Simple Scatter Diagram.

From the figure 3 we can see a relatively correlated arrangement of the two variables, at an R2 = 0.414. This means that on average, 41.4% of the variation in the description of the specialization can be explained by the specialization, on the sample analyzed, in June 2020, in the Covid-19 pandemic.

Correlations

		Skill	University/Industry Partner	Course Name	Course Description	Specialization	Skills Learned	Specialization Description	Subtitle Language	Domain	Sub Domain
Skill	Pearson Correlation	1	-.212	-.077	-.032	-.042	-.083	-.022	.202	-.328**	-.181
	Sig. (2-tailed)		.085	.534	.800	.734	.506	.861	.101	.007	.143
	N	67	67	67	67	67	67	67	67	67	67
University/Industry Partner	Pearson Correlation	-.212	1	.005	.339**	.036	.178	-.015	-.196	.092	-.118
	Sig. (2-tailed)	.085		.968	.005	.771	.150	.907	.111	.459	.342
	N	67	67	67	67	67	67	67	67	67	67
Course Name	Pearson Correlation	-.077	.005	1	-.214	.013	.021	.060	-.292*	.324**	.257*
	Sig. (2-tailed)	.534	.968		.083	.916	.863	.630	.016	.008	.036
	N	67	67	67	67	67	67	67	67	67	67
Course Description	Pearson Correlation	-.032	.339**	-.214	1	.154	.144	.205	.012	-.094	-.233
	Sig. (2-tailed)	.800	.005	.083		.214	.246	.096	.926	.448	.058
	N	67	67	67	67	67	67	67	67	67	67
Specialization	Pearson Correlation	-.042	.036	.013	.154	1	.330**	.643**	.019	.205	.026
	Sig. (2-tailed)	.734	.771	.916	.214		.006	.000	.881	.096	.835
	N	67	67	67	67	67	67	67	67	67	67
Skills Learned	Pearson Correlation	-.083	.178	.021	.144	.330**	1	.287*	-.051	.162	.092
	Sig. (2-tailed)	.506	.150	.863	.246	.006		.019	.683	.191	.458
	N	67	67	67	67	67	67	67	67	67	67
Specialization Description	Pearson Correlation	-.022	-.015	.060	.205	.643**	.287*	1	-.068	.287*	-.004
	Sig. (2-tailed)	.861	.907	.630	.096	.000	.019		.586	.018	.975
	N	67	67	67	67	67	67	67	67	67	67
Subtitle Language	Pearson Correlation	.202	-.196	-.292*	.012	.019	-.051	-.068	1	-.304*	-.285*
	Sig. (2-tailed)	.101	.111	.016	.926	.881	.683	.586		.012	.019
	N	67	67	67	67	67	67	67	67	67	67
Domain	Pearson Correlation	-.328**	.092	.324**	-.094	.205	.162	.287*	-.304*	1	.387**
	Sig. (2-tailed)	.007	.459	.008	.448	.096	.191	.018	.012		.001
	N	67	67	67	67	67	67	67	67	67	67
Sub Domain	Pearson Correlation	-.181	-.118	.257*	-.233	.026	.092	-.004	-.285*	.387**	1
	Sig. (2-tailed)	.143	.342	.036	.058	.835	.458	.975	.019	.001	
	N	67	67	67	67	67	67	67	67	67	67

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Figure 2. Pearson correlation coefficients

Source: Developed by the authors in the SPSS program

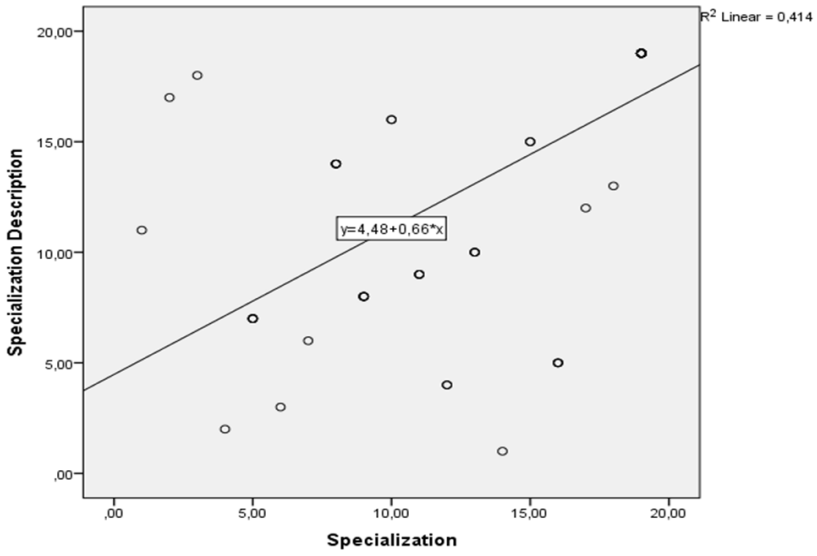

Figure 3. Simple Scatter Diagram

Source: Developed by the authors in the SPSS program

In order to establish the simple linear regression, we will present in the figure 4, the descriptive statistics, respectively the mean and the standard deviation for the dependent variable and the independent variable.

Descriptive Statistics

	Mean	Std. Deviation	N
Specialization Description	13.7164	5.81744	67
Specialization	13.9254	5.63892	67

Figure 4. Descriptive statistics

Source: Developed by the authors in the SPSS program

The following table (figure 5) highlights the Pearson correlation, which shows a correlation of 64.3%, a relatively good correlation, which means that we chose the model relatively correctly, at a significance level of 1%, on a sample of 67 observations:

Correlations

		Specialization Description	Specialization
Pearson Correlation	Specialization Description	1.000	.643
	Specialization	.643	1.000
Sig. (1-tailed)	Specialization Description	.	.000
	Specialization	.000	.
N	Specialization Description	67	67
	Specialization	67	67

Figure 5. Pearson correlations

Source: Developed by the authors in the SPSS program

We will continue with the estimation of the model, and we will present the ANOVA table, which shows us if the model is relevant, respectively if the parameters of the regression equation differ significantly from zero. Because sig. (0.000) is less than 0.005 the risk threshold we assume in this case, means that the model is statistically relevant.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	924,073	1	924,073	45.867	.000[b]
	Residual	1,309.539	65	20.147		
	Total	2,233.612	66			

a. Dependent Variable: Specialization Description

b. Predictors: (Constant), Specialization

Figure 6. ANOVA test

Source: Developed by the authors in the SPSS program

Next we analyze the table with coefficients and estimate a regression model with a constant. The estimate for the beta parameter, regarding the independent variable is statistically significant, because it has a sig. below 5% and the confidence interval (0.488 - 0.859), does not contain the value zero.

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			95,0% Confidence Interval for B	
		B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound
1	(Constant)	4.476	1.470		3.044	.003	1.539	7.413
	Specialization	.664	.098	.643	6.773	.000	.468	.859

a. Dependent Variable: Specialization Description

Figure 7: Coefficients of the regression equation
Source: Developed by the authors in the SPSS program

According to Hypothesis 1, there is a positive relationship between specialization and the description of specialization, amounting to 0.643, which reflects a moderate correlation with a good degree of association, at a significance level of 1%, on a sample of 67 observations, field of interest "Human Skills". This means that the description of specialization must be well-argued with elements adapted to the new requirements of the labor market, so that young people from any region of the planet can choose, according to needs, the course or specialization that they recommend as having the necessary skills and abilities. finding a job in the digital age.
According to hypothesis 2, the Pearson correlation coefficient between the university / partner industry and the course description shows a weakly positive correlation (r = 0.339) and an acceptable degree of association. A positive Pearson correlation coefficient (r = 0.387) between domain and subdomain also means a weak correlation and a certain degree of association.

CONCLUSIONS, LIMITS AND RESEARCH DIRECTIONS

The presented study is intended to be only a starting point for more advanced studies on the investigation of variables offered by other areas of interest, the Coursera platform, where the number of courses (table no. 1) offered is much higher than the analyzed area. (Human skills), respectively, industry, business, technology, data, to adapt the Romanian education system to the online education system in the world. In addition, it is opportune for prestigious Romanian universities to make themselves known worldwide, to internationalize and adhere to the benefits of the online learning system by using MOOC platforms. It is very important that universities in this period adapt their own curricula to the new requirements imposed by Covid-19, in the context of the growing need for jobs that require relevant skills.
We are witnessing the establishment of a new industry in the field of education with a complex structure (Annex no. 1), consisting of MOOC providers, companies, universities, non-profit sector, venture capital, society, other stakeholders. Like any new learning model, it has benefits, but also limits.
The benefits of MOOCs include online collaboration, which facilitates the collaboration of students and teachers around the world without meeting physically, as well as partnerships between students, no matter where they are, without the need for transportation and accommodation; Increasing access to quality higher education for many people in developing countries; Providing an accessible alternative to formal education, addressing a large number of participants anywhere, who can study at any time, if they have an internet connection; The goals of sustainable development refer to a form of open education; It offers a flexible learning program, depending on time and space.
Through this new learning model, many introductory courses are free, with students paying a small fee, only for intermediate, advanced and accreditation courses.
Online course providers may charge employers for recruiting students. Students may pay fees for taking the exams and awarding diplomas or certificates of completion.

The Udemy platform agrees that teachers sell online courses, withholding 70-85% of revenue, as well as intellectual property rights.
Coursera found that students who paid symbolic fees of up to $ 90 were more interested in completing the online course and significantly reduced the dropout rate.
Among the limitations of MOOCs we identify: a chaotic learning environment may occur, which does not have a daily or weekly schedule; prior digital education is required for the use of online materials; the effort of the learners and the time allotted for learning may exceed the possibilities of some learners, who need the support of a mentor; students can reshape and reinterpret the course content, without the teacher / instructor / mentor being able to control this (discussion forums are useful for certain topics launched in the debate, but not for a course content); learners need to set their own goals to build their own system of personal resilience and self-regulation; barriers to the translation of the term may arise.
In conclusion, the role of IoT in the education system is major, and the next generation is already prepared with innate or acquired skills to face this new challenge.
The question is what are the positive and negative effects of the intensive and extensive use of technology on the health of the next generation of young people, pupils and students? This may be another research topic for a future article.

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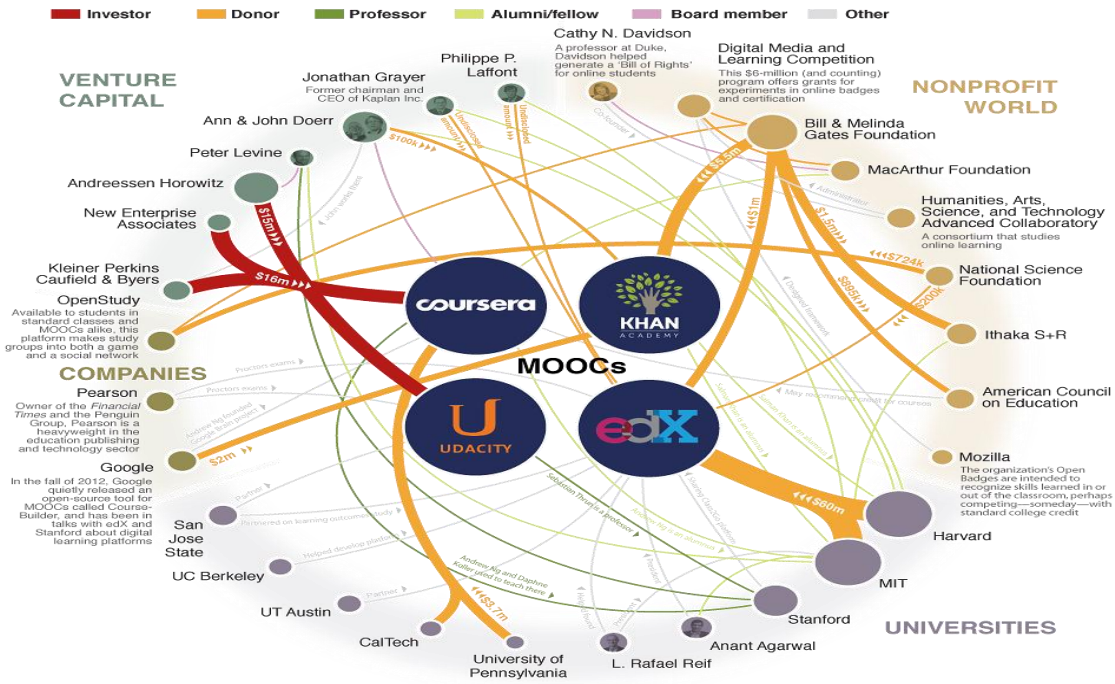
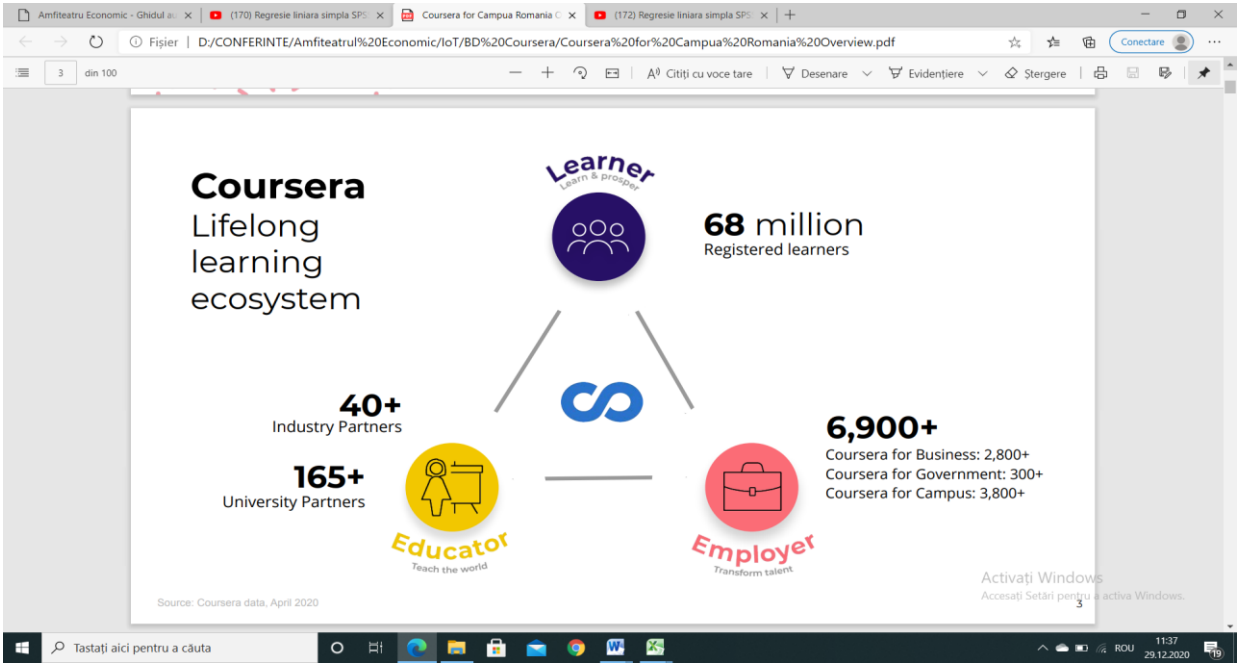
Annex 1



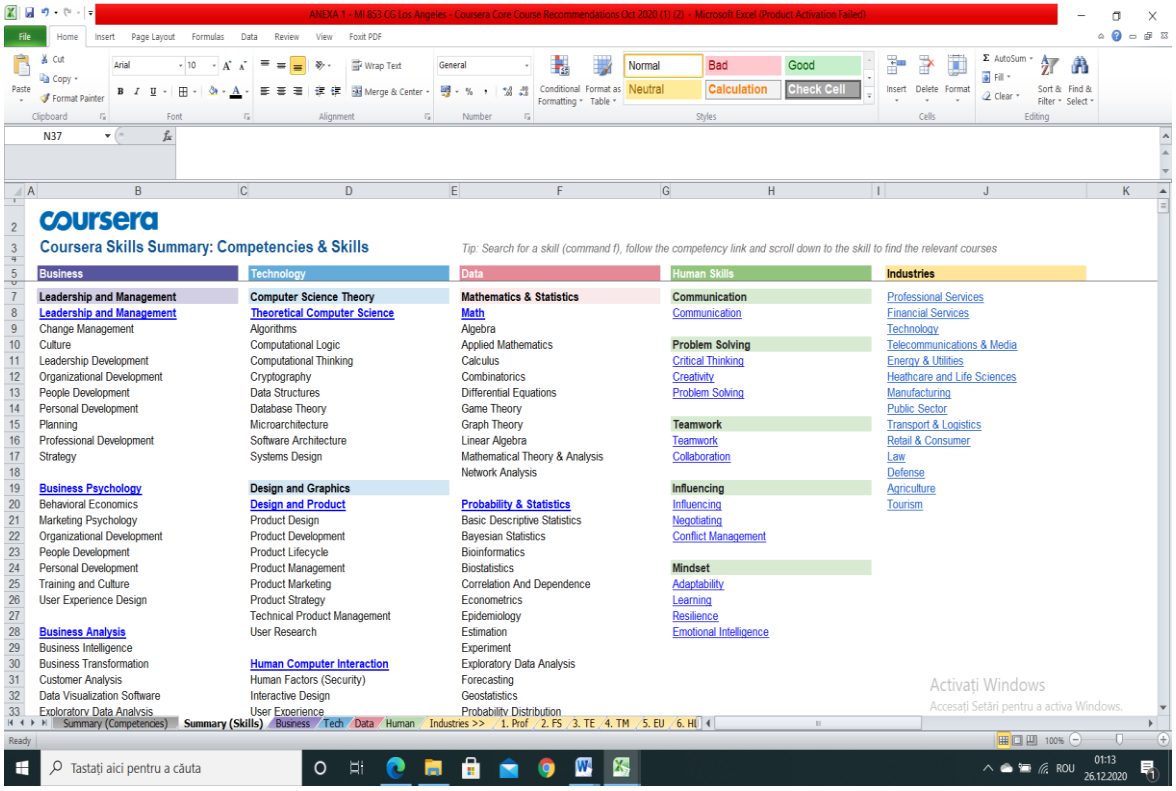
Source: Major Players in the MOOC Universe (chronicle.com)

Annex 2



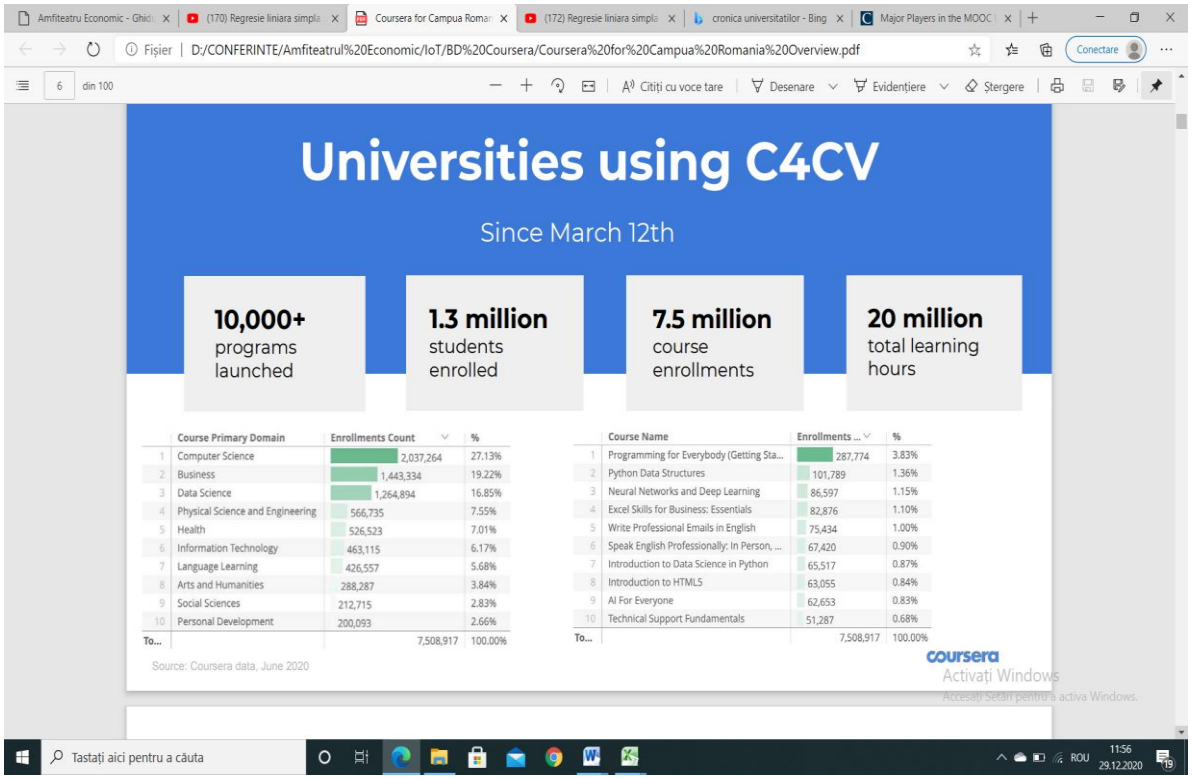
Source: Corsera for campua Roumania overview, 2020, p.3

Annex 3



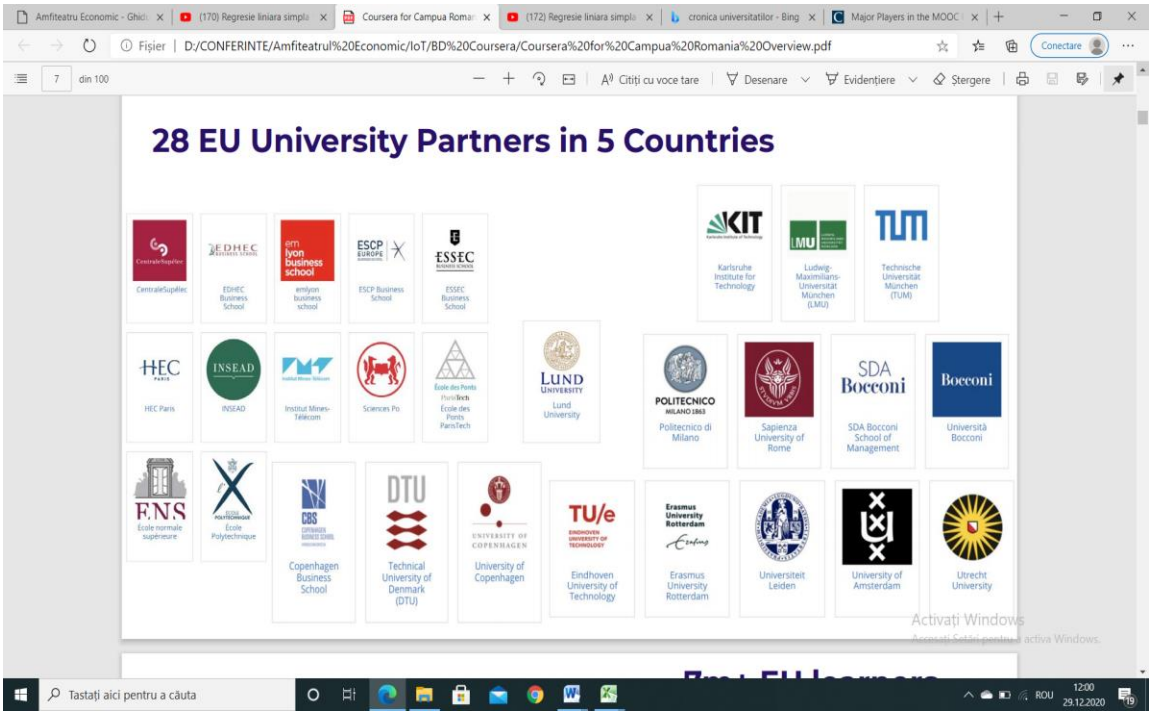
Source: MI 853 CG Los Angeles – Coursera Core Course Recommandations iunie 2020

Annex 4



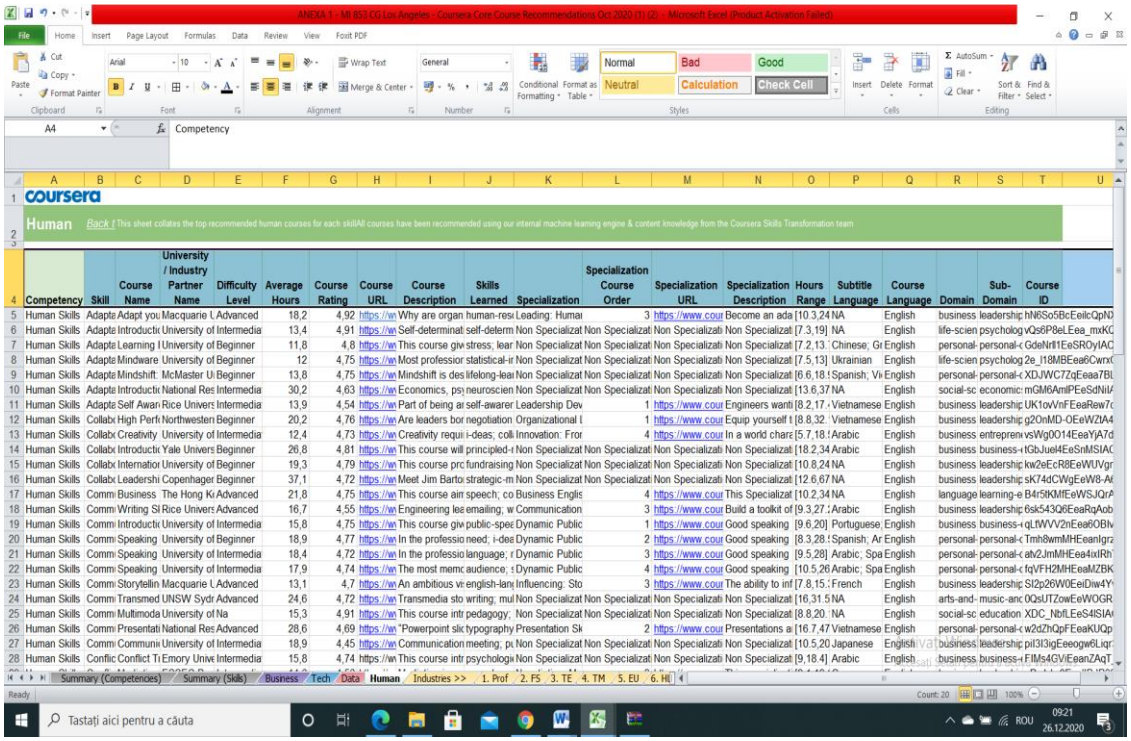
Source: Corsera for campua Roumania overview, 2020, p.6

Annex 5



Source: Corsera for campua Roumania overview, 2020, p.7

Annex 6



Competency	Skill	Course Name	University / Industry Partner Name	Difficulty Level	Average Hours	Course Rating	Course URL	Course Description	Skills Learned	Specialization	Specialization Course Order	Specialization URL	Specialization Description	Hours Range	Subtitle Language	Course Language	Domain	Sub-Domain	Course ID
Human Skills	Adapta	Adapt you	Macquarie U	Advanced	18,2	4,92	https://w	Why are organ	human-res	Leading: Humai	3	https://www.cour	Become an ada	[10.3,24	NA	English	business	leadership	hN6So5BcEeilcQpN
Human Skills	Adapta	Introductic	University of	Intermedia	13,4	4,91	https://w	Self-determinat	self-determ	Non Specializat	Non Specializat	Non Specializati	Non Specializat	[7.3,19]	NA	English	life-scien	psycholog	xQs6P8eLEea_mxK
Human Skills	Adapta	Learning I	University of	Beginner	11,8	4,8	https://w	This course giv	stress; lear	Non Specializat	Non Specializat	Non Specializati	Non Specializat	[7.2,13.	Chinese; Gr	English	personal-	personal-(	GdeNr81EeSROyIAC
Human Skills	Adapta	Mindware	University of	Beginner	12	4,75	https://w	Most professior	statistical-r	Non Specializat	Non Specializat	Non Specializati	Non Specializat	[7.5,13]	Ukrainian	English	life-scien	psycholog	2e_I18MBEea6Cwrx
Human Skills	Adapta	Mindshift:	McMaster U	Beginner	13,8	4,75	https://w	Mindshift is des	lifelong-lea	Non Specializat	Non Specializat	Non Specializati	Non Specializat	[6.6,18.5	Spanish; Vi	English	personal-	personal-(	XDJWC7ZqEeaa7BI
Human Skills	Adapta	Introductic	National Res	Intermedia	30,2	4,63	https://w	Economics, psy	neuroscien	Non Specializat	Non Specializat	Non Specializati	Non Specializat	[13.6,37	NA	English	social-sc	economic	mGM6AmlPEeSdNiU
Human Skills	Adapta	Self Awar	Rice Univers	Intermedia	13,9	4,54	https://w	Part of being ar	self-awarer	Leadership Dev	1	https://www.cour	Engineers wanti	[8.2,17.	Vietnamese	English	business	leadership	UK1ovVnFEeaRew7
Human Skills	Collabc	High Perfc	Northwestern	Beginner	20,2	4,76	https://w	Are leaders bor	negotiation	Organizational	1	https://www.cour	Equip yourself t	[8.8,32.	Vietnamese	English	business	leadership	g2OnMD-OEeWZtA4
Human Skills	Collabc	Creativity	University of	Intermedia	12,4	4,73	https://w	Creativity requi	i-deas; coll	Innovation: Fror	4	https://www.cour	In a world chare	[5.7,18.5	Arabic	English	business	entreprer	vsWg0O14EeaYjA7d
Human Skills	Collabc	Introductic	Yale Univers	Beginner	26,8	4,81	https://w	This course will	principled-r	Non Specializat	Non Specializat	Non Specializati	Non Specializat	[18.2,34	Arabic	English	business	business-r	tGbJuel4EeSnMSIA
Human Skills	Collabc	Internatior	University of	Beginner	19,3	4,79	https://w	This course pro	fundraising	Non Specializat	Non Specializat	Non Specializati	Non Specializat	[10.8,24	NA	English	business	leadership	kw2eEcR8EeWUVgr
Human Skills	Collabc	Leadershi	Copenhager	Beginner	37,1	4,72	https://w	Meet Jim Barto	strategic-m	Non Specializat	Non Specializat	Non Specializati	Non Specializat	[12.6,67	NA	English	business	leadership	sK74dCWgEeW8-A
Human Skills	Comm	Business	The Hong Ki	Advanced	21,8	4,75	https://w	This course aim	speech; co	Business Englis	4	https://www.cour	This Specializat	[10.2,34	NA	English	language	learning-e	B4r5tKMfEeWSJQrA
Human Skills	Comm	Writing Sl	Rice Univers	Advanced	16,7	4,55	https://w	Engineering lea	emailing; w	Communication	3	https://www.cour	Build a toolkit of	[9.3,27.	Arabic	English	business	leadership	6sk543Q6EeaRqAob
Human Skills	Comm	Introductic	University of	Intermedia	15,8	4,75	https://w	This course giv	public-spea	Dynamic Public	1	https://www.cour	Good speaking	[9.6,20]	Portuguese;	English	business	business-(	qLtWVV2nEea6OBlv
Human Skills	Comm	Speaking	University of	Beginner	18,9	4,77	https://w	In the professio	need; i-dea	Dynamic Public	2	https://www.cour	Good speaking	[8.3,28.	Spanish; Ar	English	personal-	personal-(	Tmh8wmMHEeanIgrz
Human Skills	Comm	Speaking	University of	Intermedia	18,4	4,72	https://w	In the professio	language; r	Dynamic Public	3	https://www.cour	Good speaking	[9.5,28]	Arabic; Spa	English	personal-	personal-(	atv2JmMHEea4ixIRh
Human Skills	Comm	Speaking	University of	Intermedia	17,9	4,74	https://w	The most memc	audience; s	Dynamic Public	4	https://www.cour	Good speaking	[10.5,26	Arabic; Spa	English	personal-	personal-(	fqVFH2MHEeaMZBK
Human Skills	Comm	Storytellin	Macquarie U	Advanced	13,1	4,7	https://w	An ambitious vi	english-lan	Influencing: Sto	3	https://www.cour	The ability to inf	[7.8,15.	French	English	business	leadership	Sl2p26W0EeiDiw4Y
Human Skills	Comm	Transmed	UNSW Sydr	Advanced	24,6	4,72	https://w	Transmedia sto	writing; mul	Non Specializat	Non Specializat	Non Specializati	Non Specializat	[16,31.5	NA	English	arts-and-	music-anc	0QsUTZowEeWOGR
Human Skills	Comm	Multimoda	University of	Na	15,3	4,91	https://w	This course intr	pedagogy;	Non Specializat	Non Specializat	Non Specializati	Non Specializat	[8.8,20.	NA	English	social-sc	education	XDC_NbfLEeS4ISIA
Human Skills	Comm	Presentati	National Res	Advanced	28,6	4,69	https://w	"Powerpoint slic	typography	Presentation Sk	2	https://www.cour	Presentations a	[16.7,47	Vietnamese	English	personal-	personal-(	w2dZhQpFEeaKUQp
Human Skills	Comm	Communi	University of	Intermedia	18,9	4,45	https://w	Communication	meeting; pu	Non Specializat	Non Specializat	Non Specializati	Non Specializat	[10.5,20	Japanese	English	business	leadership	pil3I3igEeeogw6Lqr
Human Skills	Conflic	Conflict Ti	Emory Unive	Intermedia	15,8	4,74	https://w	This course intr	psychologi	Non Specializat	Non Specializat	Non Specializati	Non Specializat	[9,18.4]	Arabic	English	business	business-r	FIMs4GViEeanZAqT

Source: MI 853 CG Los Angeles – Coursera Core Course Recommendations iunie 2020