Bologna Process Researchers' Conference
Future of Higher Education

Panel: 5.
Looking forward: Digital transformations in higher education and the expansion of the Bologna Process model across the world

Digitalisation paths: Bootstrapping the Bologna Digital initiative in Eastern European HEIs through e-research in the Humanities

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Abstract

The emergence of digital technologies has been changing the landscape of higher education across Europe, challenging both decision-makers, academic staff and students. Priorities in digitalisation strategies for universities (White Paper 'Bologna Digital 2020', Rampelt et al. 2019) are actively promoted and their implementation is in progress Europe-wide. Their focus lies primarily on digital skill acquisition by student learners and teachers with an impact on mobility processes and the quality of the educational offer at the universities. In this context, e-research, i.e. research using or resulting in digital methods and tools, deserves special attention as it faces a variety of extra challenges that are either strategic in nature (e.g. insufficient funding), discipline-specific (e.g. classic Humanities versus science disciplines) or culture-dependent (i.e. preference for traditional methods in particular national educational systems). Moreover, the embedding of the digitalisation reform at the institutional level is considerably uneven from one country to another, with Eastern European countries lagging behind, as numerous studies related to education (Conrads et al. 2017) and business (SEEDIG 2018 Survey; Razvadauskas 2018) indicate: no country from the region is situated among the top players in emerging digital technologies (OECD Measuring the Digital Transformation 2019).

The aim of this paper is to present and discuss high-impact initiatives in e-research (e.g. Digital Humanities) in HEIs in Eastern Europe while summarizing their compatibility with the goals presented in the White Paper 'Bologna Digital 2020'. We further exemplify the process of developing an e-research centre by presenting, assessing and placing in international context the recently created research centre CODHUS, from the West University of Timișoara, Romania, one of the few Digital Humanities centres in the region. The new initiative incorporates complex digital-method-related algorithms for developing technology-based solutions and digital tools for research, course development and assessment, in order to bridge the gap between teaching strategies and goals, on one hand, and students' digital experiences and expectations from HEI, on the other.

Keywords: *Bologna Digital, digital technologies, e-research, digitalisation in Eastern Europe, Digital Humanities, CODHUS*

1 Introduction

The emergence of digital technologies has been changing the educational landscape in European Higher Education Area (EHEA) in the last decade. Transformations have occurred at multiple levels of digitally enabled products and processes, from the creation and preservation of information to the level of information transmission (Noam 1999; Pfeffer 2003) and exchange, thus fostering new learning ecologies (Galvis 2018). Among the myriad of digital approaches to learning and teaching developed, tested and implemented every day in academia, eLearning is the most popular, its story still unfolding (Noble 2001, Heidkamp and Kergel 2018).

In order to synthesise, support and guide such initiatives, a European policy for the provision and management of digitalisation strategies has been issued, *White Paper 'Bologna Digital 2020',* which includes six major priorities: (1) More Proactive Preparation, Admission and Transition; (2) Skills for the Digital Age; (3) New Mobility Patterns: Virtual Exchange and Blended Mobility; (4) Recognition of (Prior) Learning; (5) Quality Assurance; (6) Strategies for teaching and learning. Although the 38 states committed themselves to implementing common policies by building a set of "structural reforms and shared tools" (as the official website of EHEA informs[1]), the differences between the perspectives, needs and capacities of different cultures still vary greatly. The "significant differences in the effect that the advanced technologies are having in different countries" (Guri-Rosenblit 2009: 69) lead to disparities in terms of infrastructure, priorities, but also practices.

These particularities lead, ultimately, to an uneven embedding of the digitalisation reform at the national level, with digitalisation paths varying massively from one country to another. The group of countries that struggles the most to "break with the old system" (Hörner 2014: 7) and adopt the new European policies is the Eastern European ex-communist group. In contrast with Central and Western countries, their primary challenge is to move away from the post-communist context before reflecting upon further developments. That is why, strategies are needed in order to reduce the disparity in implementing digital reforms that have the potential to strengthen the attempts to modernise the higher education system and to promote such values as equality, fairness and inclusion throughout the EU.

2 E-research

2.1 E-research skills as digital skills

It is widely agreed that "the current goals of the Bologna Process can be better achieved through harnessing digital technology" (Orr and Rampelt 2018: 2), which makes digitalisation a key strategy in building a common European framework for HEI. Although the *White Paper 'Bologna Digital 2020'* suggests that digital education can be best achieved through learning and teaching strategies, an additional pathway that can enhance the impact of the digitalisation-related policies is the integration of e-research.

> "The full potential of digitalisation has not been reached on systemic level. This is partly due to digitalisation being viewed as an additional challenge, rather than a means to meet existing challenges for higher education" (Orr et al. 2018).

Why e-research? For two main reasons, both of them concurring to create the premises for the acceleration of the Bologna Digital pace of implementation:

(a) *E-research automatically triggers the use of the latest technologies, tools and methods.* In this context, we define e-research as research in which either digital methods and tools prevail (i.e. the use of digital methods for the collection, analysis and evaluation of data), or the end-result of the research

[1] More information at: http://www.ehea.info/.

process is a digital product (e.g. digital methodology, digital tool). It is also important to understand the limits and potential of the notion of "digital" in relation to the notion of "research". We see it as continuum (see also Figure 4 in next section) starting from standard digital literacy skills to complex abilities involving the use and manipulation of digital tools and technologies.

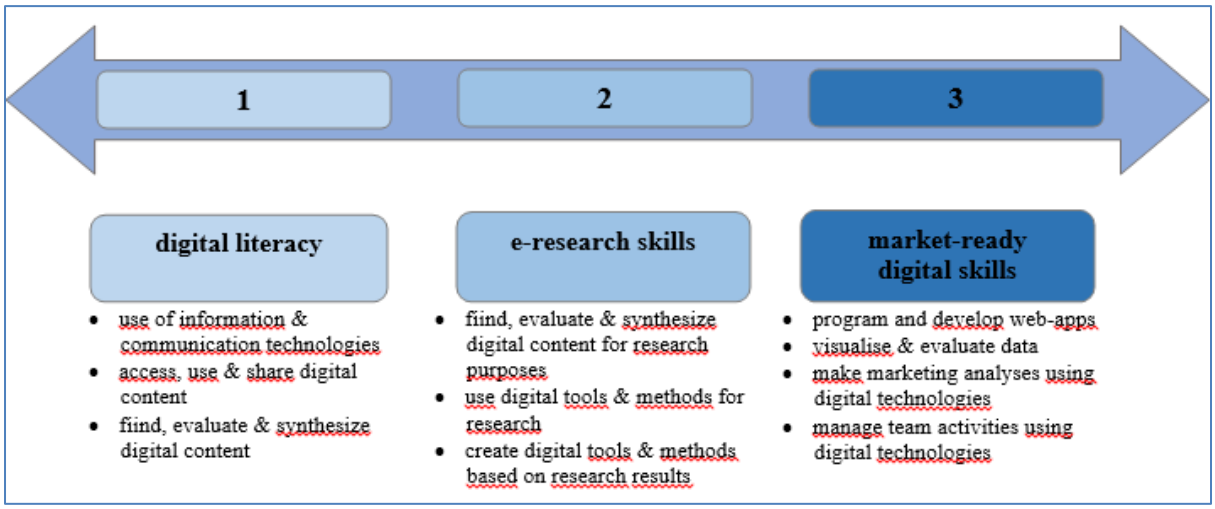


Figure 1: Continuum of digital skills integrating e-research skills

One could argue that all research nowadays is digital, considering the indispensability of digital means (such as communication and information extraction platforms, software) for the latest discoveries in science and technology. This is definitely true, in general, but we should not forget that the statement loses its validity if we include disciplinary distribution of digital skill expertise into the equation: disciplines such as ICT, information management, engineering, economics are at the core of digital-intensive discipline range, disciplines such as biology, chemistry, health involve both classic (i.e. lab experiments) and digital (i.e. data processing) activities, whereas disciplines such as the Humanities primarily (still) rely on traditional research methods (e.g. perspective-based comparative studies). This places researchers in some fields at a disadvantage, which is reflected in the visibility and prestige of their publications, and the access they have to research funding. In fact, if we consider the number of publications in less e-research-prone disciplines indexed through Web of Science, or if we quantify the EU funded projects awarded to the same disciplines, we have to ask ourselves whether the low numbers have to do with the quality of the research proposal, the assessment of the societal impact of the topic, or the lack of innovative methods proposed. We incline towards believing that all three motives can be tackled by improving the expertise in e-research of the experts in the aforementioned discipline.

(b) *E-research agents (researchers, HEI teachers) act as multipliers of digital competences.* European education has to go digital, this is desideratum of all decision makers on the continent. Although major steps have been taken to make it a reality, and digitalisation is prioritised in one of the European Commission's Multiannual Financial Framework (the Digital Europe Programme, 2021-2027[2]), awareness has to be raised towards practical strategies, turned into financial-support actions, which could potentially lead to an efficient and rapid implementation of the ongoing digitalisation processes.

Such a strategy has to take into consideration the impact brought about by e-research for the objectives proposed by the Bologna process?: if more and more scholars were undertaking research that incorporates digital methods, they would likely be exposed to training in new skills, to start re-thinking their approach towards their disciplines, and import innovative methods and technologies in their everyday teaching activities. Thus, students would have instant access to the latest developments and digital competence building strategies. By this, we do not mean only training in basic digital literacy skills (i.e. work with digital information systems, communication and task fulfilment via e-elearning channels),

[2] More information at: https://ec.europa.eu/digital-single-market/en/news/digital-europe-programme-proposed-eu92-billion-funding-2021-2027.

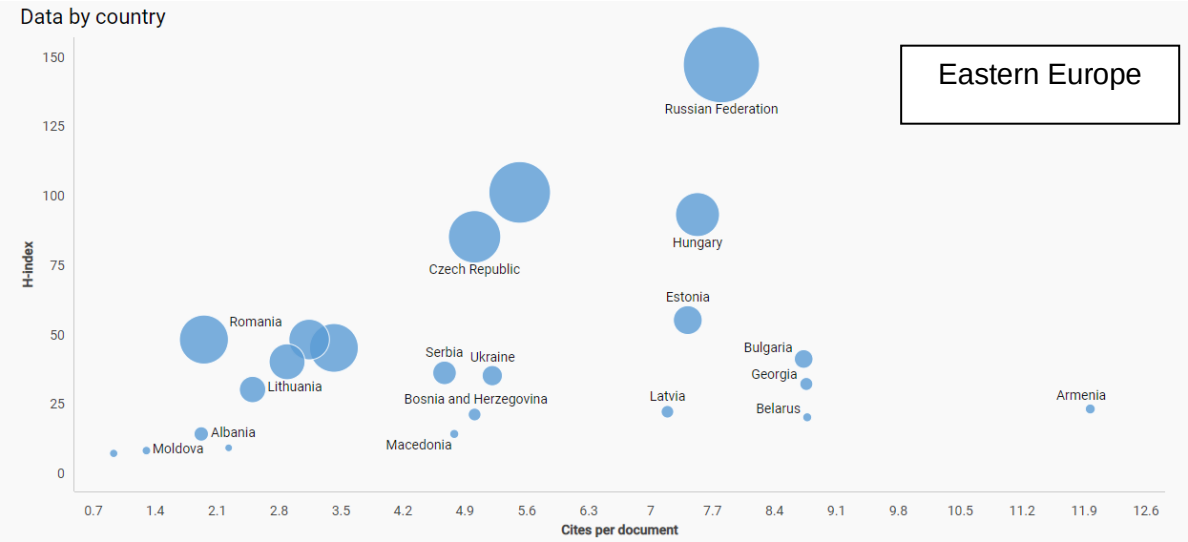
but we also refer to the students' hands-on practices of discipline-specific digital tools and methods (e.g. linguistic analysis tools, literature visualisation apps), with a high motivational impact for learners (see Tong et al. 2018). Moreover, we imagine the process to be self-multipliable, since better equipping students with digital competences is useful not only for day-to-day activities, but also, in a technology-rich labour market, the chances are that the students will value the anchoring of the HE teaching in the latest tech trends and start being more interested in becoming a member of the academia themselves. This, again, would support the sustainability of reform implementation strategies and the natural renewal of HEIs teaching and learning methods.

2.2 Disparity in SSH research initiatives within EHEA

Needless to say that the disciplines where e-research support actions are urgently needed are the humanities; first of all because digital expertise improvement seems to be necessary for research project proposals (which, in turn, could improve the institutional and national impact of digitalisation strategies); second, because, through innovative technology-related research in the humanities, teaching methods can be improved and students motivated to enrol in less "appealing" fields; third, because, in this field, the disparity of the Bologna Digital implementation progress is the most visible when we compare Eastern and Western HEIs (OECD *Measuring the Digital Transformation* 2019).

In fact, a quick look at the Arts & Humanities citation index per country group indicates a massive difference in research dissemination results:

H index	Documents	Citations	Citations per document
224	84905	418409	4.93



H index	Documents	Citations	Citations per document
760	519502	7196564	13.85

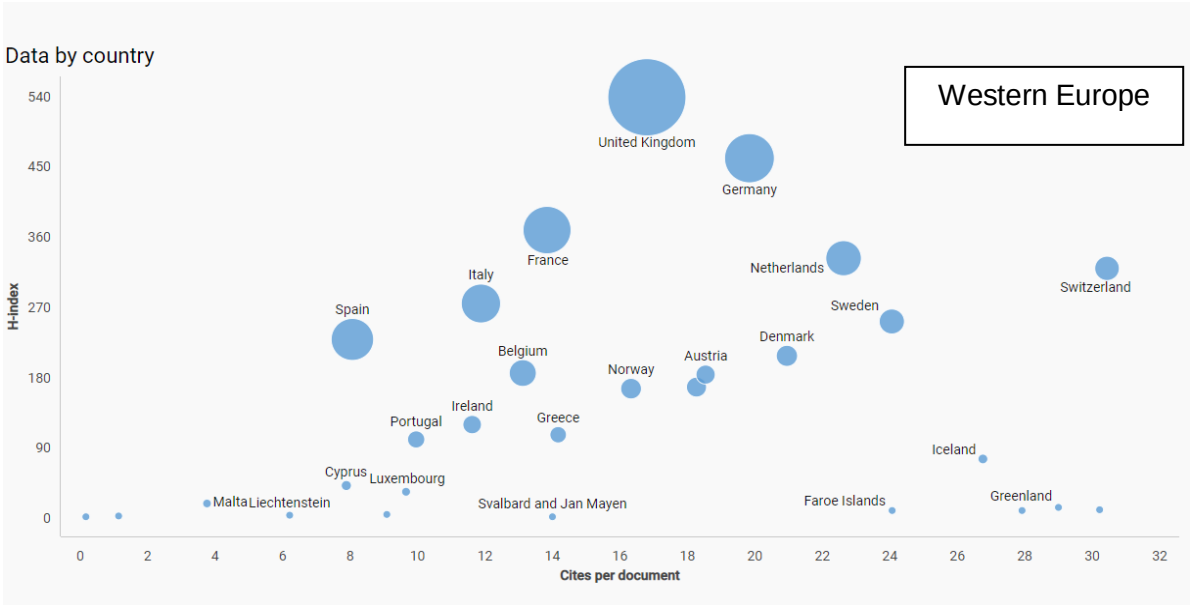


Figure 2: Citation metrics for Arts & Humanities by country groups (Eastern versus Western Europe), adapted from SCImago (2019)

Another parameter to consider when assessing discrepancies between regions is the amount of SSH (Social Science and Humanities) EU funded projects awarded per country (see below).

Country affiliation of SSH partners – top 20 countries

Country	DE	BE	IT	UK	ES	FR	NL	AT	Other	EL	PL	SE	DK	NO	PT
Partners	101	93	86	87	59	59	57	41	39	34	26	24	24	20	19
Share	11%	10%	9%	9%	6%	6%	6%	4%	4%	4%	3%	3%	3%	2%	2%
Country	HU	CH	FI	CZ	RO										
Partners	17	16	15	14	13										
Share	2%	2%	2%	1%	1%										

Figure 3: Research project partners in Social Sciences and Humanities (Kania et al. 2018: 20)

The tendency has been remarked in several research-funding analysis reports: Kania et al. (2018) note that "the distribution of countries from which the partners originate is similar to Horizon 2020 overall. Seven countries from the EU-15 are dominating the landscape, while the member states which joined the EU since 2004 onwards, seem to be less widely represented" (p. 5), while Heilbron et al. (2018) draw a wider-context conclusion by stating that "the globalizing field of the SSH [Social Sciences and Humanities] is thus strongly dominated by 'Western' countries, displaying a duopolistic structure, with a North American-European core, various semi-peripheral and multiple peripheral countries" (p. 2).

Such statistics makes us ask ourselves whether the low research funding rates corresponding to Eastern European HEIs have to do with the quality of the research proposal, the assessment of the societal impact of the topic or the lack of innovative methods proposed. We incline towards believing that all three motives can be tackled by creating favourable conditions for the dissemination of competences in breakthrough research methods (i.e. e-research),

2.3 Bootstrapping digitalisation: the case of Digital Humanities

As already mentioned, we are convinced that the area of research which needs more strategic support and policy embedding is represented by the humanities, precisely because this field is considered classical and the general (self-) perception is that it does not intersect with digital methods. From this

perspective, departments in Eastern Europe suffer from a double disadvantage: traditional teaching methods are still very much prevalent (i.e. traditional academic genres produced, delivered and assessed like "in the old days") and research related to humanities is conducted by established research groups whose main priority is not the shift towards modern approaches, which would undermine their prestige and authority. This is, in itself, a characteristic of the Eastern European HE systems, where the reticence towards reforms in teaching and research, motivated by personal agendas, is a serious threat to the effective implementation of the Bologna goals, including digitalisation. A cursory look at the website of the European Association of Digital Humanities[3] reveals that, among over 220 European projects listed, only in very few (CLARIN, COURAGE, DARIAH, COST Action "Distant Reading for European Literary History", eHERITAGE, Lviv Interactive) represent Eastern European HEIs, which can be correlated with the small number of visible DH centres (Centre for Digital Humanities at Eötvös Lorand University, DigiHUBB, Belgrade Center for Digital Humanities). Although individual initiatives in Humanities e-research are expanding, many of them lack institutional anchor or support.

The next section of our paper will hence offer an overview of digitalisation paths within Eastern European higher education contexts, with a strong focus on e-research developments in the humanities, as in the case of Digital Humanities.

3 The DIGITS survey

Since infographics are non-existent with regards to Digital Humanities initiatives in Eastern Europe at present, we created a survey aimed at mapping and discussing e-research, particularly the perception towards Digital Humanities initiatives, in HEIs in Eastern Europe: DIGITS (Digital Humanities Survey). DIGITS was answered by scholars in the Humanities from Eastern European HEIs and was sent to collaborators from universities in Bulgaria, Hungary, Romania, Republic of Serbia and the Ukraine in October-November 2019. This survey collected information from the target research community concerning their interests in e-research developments, in order to get a fuller understanding of the concept of digitalisation and its implementation in Eastern Europe.

3.1 Context: digitalisation in Eastern European HEIs

A concise statistical analysis of the DH field spread worldwide, created by the UCL Centre for Digital Humanities[4], dating back to 2011, mapped the existence of 114 centres in 24 countries. A significant trend towards growth between2010-2011, was noted for almost all topics included in the survey. However, at that time, only one DH centre existed in Eastern Europe (Serbia).

In order to better understand the context of DH development projects in the region, we collected information on the latest digitalisation strategies in education in several "Eastern European" countries (by which we understand countries from the former Eastern bloc). We extracted reference to both best-ranked universities, according to the Education World University Rankings 2020[5], and to less prominent universities which appear to be interested in initiating and implementing digitalisation initiatives:

For Bulgaria, we looked at two HEIs located in the capital: Sofia University St. Kliment Ohridski[6] and the New Bulgarian University[7]. The former seems to be in the process of implementing wider-use digital methods at the institutional level (e.g. initial stages of providing the University Library with e-publications), whereas the second offers access to several digital instruments for educational support: eLearning (used as a tool to enhance both the full-time and distance study options), the MOODLE NBU platform (providing access to eMaterials for each course including lectures, articles, projects and required reading lists, or offering opportunities for online consultations and communication among teachers and

[3] See the entire list at: https://eadh.org/projects.

[4] Resource: *Quantifying Digital Humanities*, (2011), created by the UCL Centre for Digital Humanities, available at: https://www.ucl.ac.uk/infostudies/melissa-terras/DigitalHumanitiesInfographic.pdf

[5] More information at: https://www.timeshighereducation.com/world-university-rankings/2020/world-ranking#!/page/0/length/25/sort_by/rank/sort_order/asc/cols/stats.

[6] More information at: https://www.uni-sofia.bg/eng.

[7] More information at: https://nbu.bg/en.

students, task assignment and test preparation, progress assessment etc.), the E-Student web portal (contains information about the learning process – assessment, schedules, admission time etc.), the E-Teacher web portal (contains information about the teaching process, supports the academic activities of the teachers), electronic library database[8] and e-training[9]. A further initiative at NBU, which resonates with one of the priorities of the White Paper 'Bologna Digital 2020', is the establishment of a Center for Distance and Digital Education[10].

At the Hungarian universities, the impact of digitalisation is quite visible. For instance, Eötvös Loránd University of Budapest[11] has developed a series of webinars[12] for teaching purposes. Moreover, the university has a large digital library[13] that is a portal of the University Library Service (ULS) organised as a network based on the cooperation of libraries working under the umbrella of the University, offering full-scale information about some 50 collections. The university also provides additional online services and resources. Another university, the Central European University in Budapest[14], has its own digital library, containing e-journals, e-books, databases and an electronic catalogue[15] and, through enrolment, it offers access to an electronic system[16]. The digital communication app, MyCEU, represents

> "an information guide for CEU students is now available for free download in both Android and iOS stores. The app contains useful information on the Budapest and Vienna CEU Campuses. In addition to student related services, resources and facilities, this app includes references to policies and procedures regarding student rights, rules and academic regulations. It is important that you become familiar with these texts, please take some time to read them"[17].

A major point of innovation, and one of the noticeable DH initiatives in the area, is the existence of the Digital Humanities Initiative[18], which provides students with access to the Digital Humanities domain. CEU is in the process of fully developing this particular area of research:

> "At the beginning of the Fall 2016 semester, the DHI circulated a short survey to determine the level of familiarity and experience with the digital humanities at CEU. We wanted to identify existing strengths, possible avenues for growth, and needs for further resources to enhance DH practices. Above all, our goal was to identify areas of DH interest among students, staff, and faculty, and to begin to build a real DH community around these shared interests"[19].

When it comes tothe Moldavian universities, it is rather challenging to assess their degree to which they have implemented digitalisation strategies. First of all, there are no universities from Moldova in the World University Rankings, so we investigated the situation of two universities for which relevant information was available: one that is considered the *biggest* university, the State University of Moldova; the other is a small university, which, in spite of its size, showcasesinnovative strategies for improving the educational process, the Bogdan Petriceicu Hasdeu University from Cahul. Within the State University of Moldova, in Chișinău, a variety of electronic resources are accessible to students and teachers, such as

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8 More information at: https://qopac.nbu.bg/EOSWebOPAC/OPAC/Index.aspx.

9 More information at: https://cc.nbu.bg/.

10 More information at: https://nbu.bg/en/schools/school-of-distance-online-and-continuing-education/center-for-distance-and-digital-education.

11 More information at: https://www.elte.hu/en/.

12 Webminars are online information sessions, where lectures or presentations on a selected topic can be accesed by using a video conferencing software.

13 More information at: https://www.elte.hu/en/library.

14 More information at: https://www.ceu.edu/.

15 More information at: https://library.ceu.edu/

16 More information at: https://sits.ceu.edu/urd/sits.urd/run/siw_ipp_lgn.login?process=siw_ipp_app_crs

17 More information about the MyCEU communication app at: https://www.ceu.edu/oo?fbclid=IwAR3Bb_vyKi-s4cs77TOygJtE4xjM1pGLB8eR9u7UFC2bgtyTiAOxXLNBEcI.

18 More information at: https://www.ceu.edu/dhi/what-is-digital-humanities.

19 More information on the official webpage of DHI, at: https://www.ceu.edu/dhi/what-is-digital-humanities?fbclid=IwAR3yts7oYQVwyeWe3dTVSqBIiLHJmRy7WBsPUxPbkBj8V6QixlC30sdFvl4.

the updated Institutional Repository of the State University of Moldova[20], designed to accumulate, store, store and disseminate the results of the scholarly and didactic activity performed at the university, or the LibUnivCatalog, an electronic library database (interactive platform). Moreover, in the university's strategic plan (2016-2020)[21], there are notes on the "use of modern technologies, including electronic platforms in the vocational training process" (2015: 3), but also the "development of the curriculum in the disciplines, focusing on the didactic process on the student (student-centered), with emphasis on the accomplishment of the individual work and the application of interactive didactic technologies" (2015: 2). It is also worth mentioning that digitalisation is promoted in research projects like *ReSTART* (*Reinforce entrepreneurial and digital skills of students and teachers to enhance the modernization of higher education in MOLDOVA*)[22].

A published strategic plan (2017-2021)[23] is also available for the Bogdan Petriceicu Hasdeu University from Cahul[24], stating that several measures have been put in place to ensure the transition to the digital services: "orientation of the curriculum towards the key competences, development (complementary to the cognitive competences) of the digital and social competences; extending the teaching in international languages into the undergraduate and master programs to facilitate exchanges of students and scientific-teaching staff" (2017: 25); "the development of the digital competences of the teaching staff in order to capitalize on the potential of new information technologies in the provision of teaching activities" (2017: 30); "the development of the Digital Library through the elaboration of textbooks, course notes and electronic teaching materials made up of the scientific-didactic staff from the University" (2017: 30); "the development of e-management components and their integration into a unique system at university level – USC's Integrated University Management Information System - including a platform for recording the frequency and success of students, online applications for admission, digital library, e-learning platform, requesting accommodation in student dormitories etc." (2017: 32).

A similar intentional process can be noticed at the biggest North Macedonian University, Ss. Cyril and Methodius University in Skopje[25], where an evaluation report[26] includes paragraphs dedicated to the improvement of teaching and learning methods through digitalisation:

> "3.6 The SER refers to the Bologna Process as a way for the university to focus on the development and efficiency of the teaching and learning process, with continuous improvement and modernisation of study programmes in line with national and international standards. UKIM units are apparently guided by the Bologna principle that students should be at the centre of the educational experience, with teaching, learning and assessment framed by specific learning outcomes and competencies. In addition, a process of teaching modernisation has started with the introduction of new IT technologies, e-learning and electronic tools for knowledge transfer. The team explored the concept of student centred learning with both staff and students. Students acknowledged that there had been some improvements in this respect although some also believed

[20] It includes an electronic archive set up and managed by the Central Library in collaboration with other university structural subdivisions (Institute of Research and Innovation, Editorial-polygraphic center etc.); it is based The Institutional Repository is based on the open source software Dspace, the OAI-PMH (Open Initiative Protocol for Metadata Harvesting) protocol.

[21] State University of Moldova, *Strategic Plan 2016-2020 (Plan strategic 2016-2020)*, approved in 2015; more information at: http://usm.md/wp-content/uploads/plan-strategic-2016_2020.pdf.

[22] More information at: http://usm.md/?page_id=20748&lang=ro.

[23] Bogdan Petriceicu Hasdeu University from Cahul, *Institutional Development Strategic Plan of Bogdan Petriceicu Hasdeu University from Cahul 2017-2021 (Planul strategic de dezvoltare instituțională a Universităţii de Stat "Bogdan Petriceicu Hasdeu" din Cahul pentru perioada 2017-2021)*, approved in 2017; more information at: http://www.usch.md/wp-content/uploads/2017/06/USC_Plan-Strategic_2017-2021-1.pdf.

[24] More information at: http://www.usch.md/.

[25] More information at: http://www.ukim.edu.mk/en_index.php.

[26] Ss. Cyril and Methodius University, *Evaluation Report*, April 2015, more information at: http://www.ukim.edu.mk/dokumenti_m/307_IEP%20report%20UKIM%20-%20FINAL.pdf.

> that a minority of academic staff still approached learning and teaching in an 'old-fashioned way'." (2015: 14)

Thus, the necessity to redesign curricula and to develop the learning and teaching methods is acknowledged and aligned with the Bologna Process. This is also the case of University of Tetova[27], where various e-services that are used by the professors, researchers and students have been implemented: iKnow, Exams, Google classroom, Akreditimi, Syllabus, CV, Library, EPrints or the Research Management System[28].

Joining the European Higher Education Area (EHEA) in 1999, Romania has continuously initiated political reforms in education under the Bologna-umbrella. The national discourse concerning HE development focuses on issues such as: struggles to deliver information efficiently, quality and performance, deficiency in meeting the labour market demands, lack of interest and motivation among students, need to adapt the curricula and methods to millennials' expectations.

"The main concern is that the Romanian universities are unsuccessful to enter the global leagues" (Szolár 2014: 209), and, considering that digitalisation is an essential "part of overall strategies for teaching and learning" (Orr and Rampelt 2018: 3), it is imperative that the digital turn should be embraced and adapted to the national needs.

In fact, most universities have implemented projects of e-library services (see Ursa 2015: 83), a basic step in digitalisation strategies (see also Fig. 1). Another recent study, conducted by Grossek et al. (2019), concluded that "most respondents tend not to use digital tools" (p. 114). The preferred form of integrating "various platforms and digital / online applications" (ibid.) into the Romanian researchers' activities was file-sharing, while other activities (micro-blogging, screencasting etc.) were rarely mentioned.

With regards to e-research at Romanian HEIs, a basic bibliometric analysis for the Romanian context indicates that most publications related to digital research in Romania target topics from two main fields: Artificial Intelligence & ICT tools (unsurprisingly) and Social Sciences & Humanities (such as: research and advanced technology for digital libraries, library in the digital age, cultural content in the digital age, building cultural heritage digital repositories, digital communication and digitizing different types of texts).

In Serbia, at the University of Belgrade, the statute[29] does not highlight any information about configuring future digitalisation strategies. An initiative that promotes electronic publishing, digital library systems, distance learning and implementation of international standards is the setting up of the Information Center[30]. The university also established the Center for E-learning and Distance Education, but there is not much information provided about it, showing that this center represents only the initial stage of a new digitalisation strategy. Important digital services are now provided by Faculty of Philology (Filoloski fakultet): an E-learning platform (Moodle)[31] and a digital library[32]:

> "As a first step toward the EU-wide coordination of digitalization programs and policies, the European Commission organized an expert meeting with representatives of all Member States in Lund (Sweden) in April 2001. The conclusions and recommendations from that meeting are known as the Lund principles. One of those principles states that: digitalization provides a key mechanism to exploit Europe's unique heritage and to support cultural diversity, education and the generation of content industries. The aim of the Digital Library of the Faculty of Philology is in line with this described statement. The Faculty of Philology at the University of Belgrade started the digitalisation process not only with its own editions, which represent an invaluable contribution to the scientific

[27] More information at: https://unite.edu.mk/en/.
[28] More information at: https://eservices.unite.edu.mk/.
[29] More information at: http://new.fil.bg.ac.rs/lang/sr/biblioteke/digitalna-biblioteka/?fbclid=IwAR3HL7HQ_Sb6Kw3Tz0sH5Hat9bY2XHHnUOAxUr5pU9DvVtDx5s5GjLmJcAE.
[30] More information at: http://bg.ac.rs/en/members/centers/information.php.
[31] More information at: https://moodle.fil.bg.ac.rs/login/index.php.
[32] More information at: http://digbil.ananda.earhiva.com/Account/LogOn?ReturnUrl=%2f.

thought in the field of study of 34 languages and their corresponding literatures and cultures, but also in the field of library and information science, as well as archival science and museology.".

As in most Eastern European HEIs, one can notice a mixture of traditional methods and modern innovative trends at the universities in Ukraine. One important step in implementing digitalisation strategies at the national level was setting up "the state electronic database for education"[33] by the Ministry of Education and Science of Ukraine. The database provides electronic application for those who want to study at a university in the Ukraine, eliminating the bureaucratic processes typical of the Eastern Europe universities. Then, individual universities are at different stages of implementing new digital strategies. In the case of Ivan Franko Lviv National University[34], for example, attempts have been made to adapt policies and strategic planning to the White Paper 'Bologna Digital 2020', by committing to the inclusion of "super-modern powerful material and technical software" (Strategy 2020, p. 11), "creation of innovative methodology of teaching" (p. 12), but also "innovative technologies in the educational process" (ibid.).

At the Taras Shevchenko National University of Kyiv[35], the situation is less promising: the admission process is not digital/ on an electronic platform and the university does not have an electronic library. Their library only provides access to full-text existing databases[36]. A noteworthy initiative, in the spirit of the White Paper 'Bologna Digital', is the promotion of university e-lectures[37]. It is also encouraging that, at another big city university, V.N. Karazin Kharkiv National University[38], the online application form and the virtual library[39] are both present.

Similarly, by analysing the situation at The Igor Sikorsky Kyiv Polytechnic Institute, we came across a series of regulations[40] (p. 27) related to improvement of the educational process through digitalisation: "1. Administrative management direction is characterized by the use of IT to optimize management process, automatization of key functions: planning, organizing, controlling; integration of the process of informatisation of management activities with the educational process; [...] 2. Planning and informational support of the educational process using computer-aid information systems and complexes; [...] 3. Implementation of distance learning" (pp. 27-30).

[33] More information at: https://ez.osvitavsim.org.ua/.
[34] More information at: http://www.lnu.edu.ua/en/.
[35] More information at: http://www.univ.kiev.ua/en/.
[36] Access to: RSC Publishing, IEEE Computer Society Digital Library, EBSCO – Academic Search Premier, Business Source Premier, ERIC, Green FILE, Health SourceConsumer Edition, Health Source: Nursing/ Academic Edition, Library, Information Science & Technology Abstracts, Master FILE Premier, Newspaper Source, Regional Business News, Medline, and some full-text journals of American Institute of Physics, American Physical Society, Emerald.
[37] More information at: http://www.electure.kiev.ua.
[38] More information at: https://www.univer.kharkov.ua/en.
[39] More information at: http://philology.univer.kharkov.ua/nauka/biblio_virt.html.
[40] More information at: https://kpi.ua/files/regulations_en.pdf.

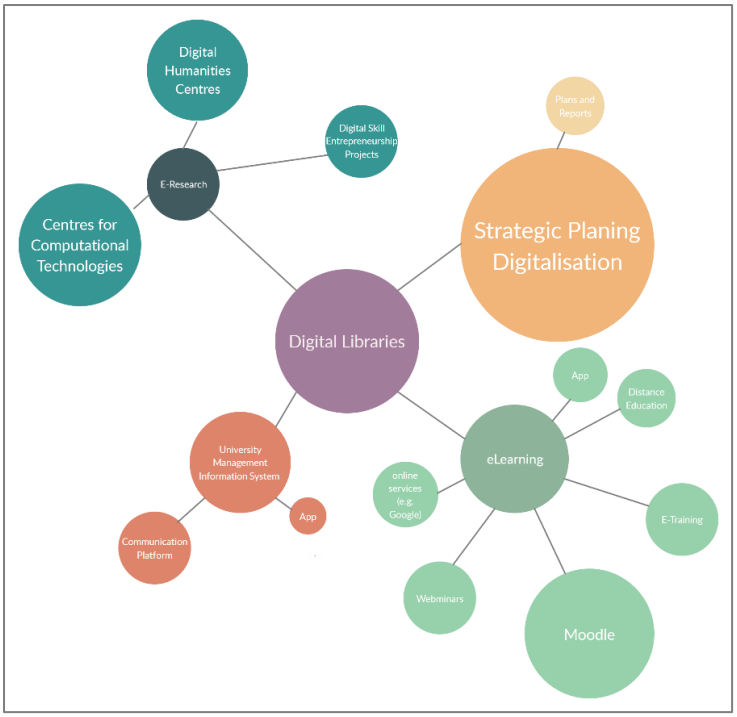

Figure 4: Distribution of digitalisation strategies in Eastern European HEIs

As a conclusion of the brief overview of digitalisation strategies in representative Eastern European HEIs (see Figure 4), we see that universities have implemented or are in the process of implementing a wide variety of digitalization strategies, even though they are in the "early stages".

It is noticeable that, in most countries, strategic planning for digitalisation in academia have been adopted to serve as guidelines for future actions. Also, basic measures have been widely employed (i.e. digital libraries) while the most common form of digital effective strategies, eLearning, is quite present in most institutions, via Moodle services. This seems similar to what other studies have reported (Orr et al. 2019: 10): "HEIs across the world are currently in the process of experimenting with digitalisation and applying next technologies to certain parts of their operation". What is still deficient, and has emerged from our information search, is the presence of e-research initiatives that resemble developments in Western European countries.

3.2 Survey design

The survey was conceived so that specific information on the attitudes, methods used and the context of implementing new strategies regarding Digital Humanities can be extracted and evaluated. The first section refers to personal information (university, age group, position at the university, inclusion into the Humanities department, field of expertise, country, existence of a DH centre at their university), whereas the second section aims at understanding the digitalisation strategies at the respondents' HEI (use of digital platform or tools, need for a higher degree of digitalisation, training in digital skills). In the third part of the survey, respondents were asked about digital practices in their activities (in teaching, research or evaluation of students). The fourth section is exclusively dedicated to the perception on DH, with questions concerning; the respondents' own definitions of the DH field, opinion on the compatibility with their area of Humanities research, opportunities to improve their expertise in the area of their specialization though DH, the topics where they feel they need more information from the domain of DH, first beneficiaries of DH initiatives at their university and the impact the existence of DH competences at their university can have institutionally.

3.3 Survey results

The DIGITS survey was designed to collect information that captures the central topics of the present study: e-research context and Digital Humanities initiatives in Eastern European HEIs. It was addressed to scholars in the Humanities, being sent to collaborators from universities in Bulgaria, Hungary, Romania, Republic of Serbia and the Ukraine in October-November 2019. This survey collected information concerning their interests in e-research developments, in order to get a fuller understanding of the concept of digitalisation and its implementation in Eastern Europe.

The questionnaire had 33 respondents (academic staff including teaching, research and management staff). DIGITS collected information about: the university they represent and their position within the institution, their field of specialisation or their age group. The main age group represented by the respondents was 40 to 50 years (33,33%) but young researchers' group were also well represented in the study (27.27% between 30 and 40 years, 18.18% under 30 years). All of the survey respondents have Humanities as their main research field (100%). According to their academic position, almost half of the respondents conduct both teaching and research activities (48%), 30% declared that their main activity is teaching, while 15% do exclusively research. Only 3% are part of the management staff.

The vast majority of the respondents are engaged in the field of Languages and Literatures (85%). Hence, the answers show an increased interest in learning about online literature databases (33%), corpus linguistics (24%), digital databases of old texts (15%), or digital translation tools (9%), as answers to the question: "Please select one area where you think you would like to learn more from the field of Digital Humanities: Digital Translation tools; Corpus linguistics; Digital archives of old texts Geolinguistics (mapping linguistic data on digital maps); Digital literary cartographies; Online literature databases; Online dictionaries; None of the above".

DIGITS reveals, surprisingly, that Digital Humanities initiatives do indeed exist in Eastern Europe: 50% declared that their universities have a "Digital Humanities Centre (or something related to a DH centre)". It is surprising because general searches do not match the proportion, i.e. there are only a few such centres in Eastern Europe (see previous section). The results can be explained, possibly, through the fact that respondents associate the field of DH with the existence of e-libraries or e-learning platforms at their universities (see below).

What the survey also highlights is the prevalence of the same digital platforms for teaching, such as Moodle (66,67%), or MOOCs (41.82%).

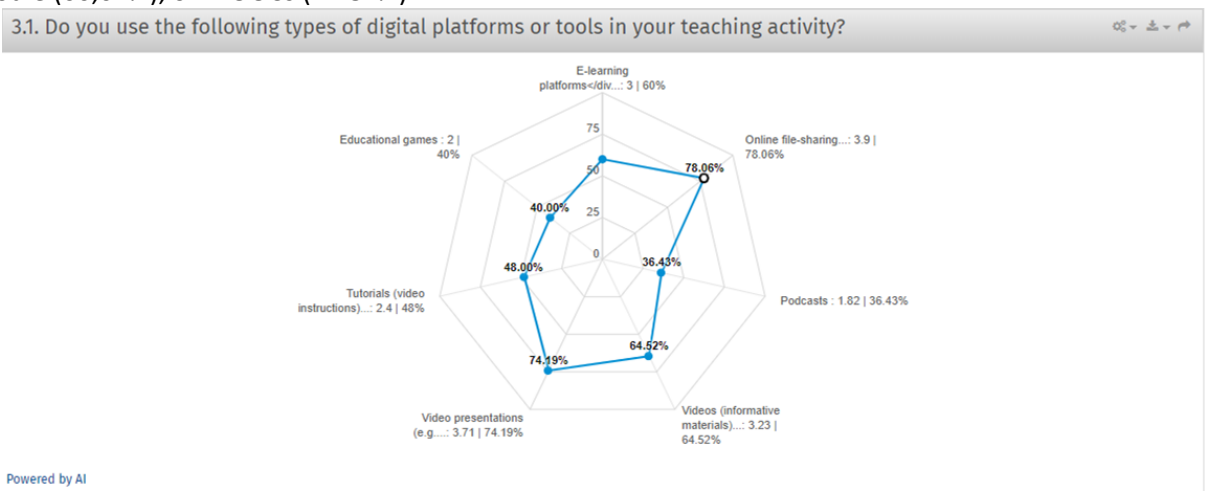

Figure 5: Digital tools used in teaching Humanities

In terms of research-related digital tools, more than 85% mention online journal databases and online libraries, while tutorials of online courses are less popular (between 50 and 60%).

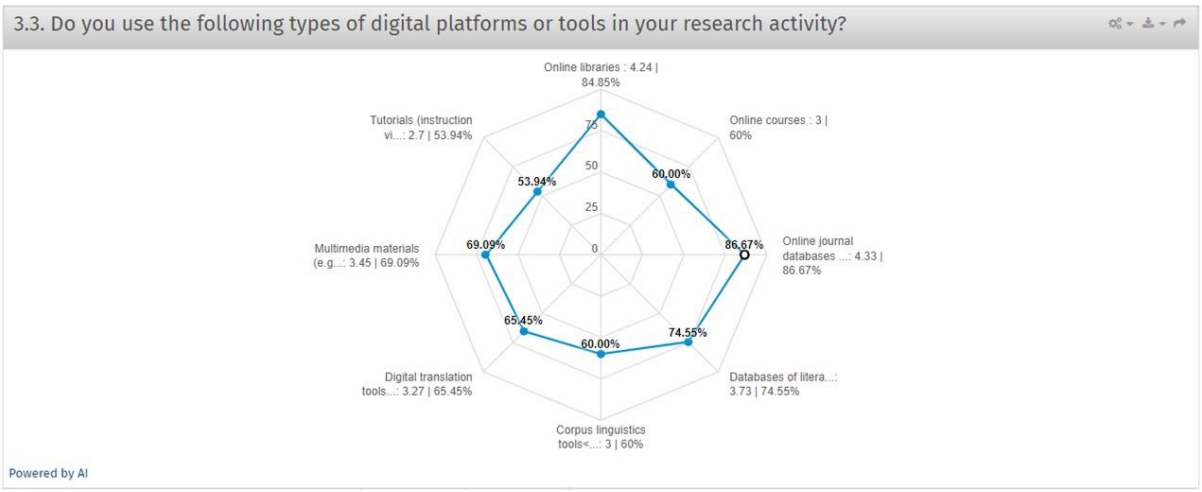

Figure 6: Digital tools used for research in the Humanities

Several digital methods are also used for student evaluation: plagiarism checkers (74.38%) in the field of Humanities, e-feedback (almost 60% declared that they use online tools to give feedback to their students). In general, less than 45% of the universities make use of online evaluation and assessment platforms.

What is encouraging is the fact that training in digital skills is offered for academic, administrative staff and students (45,45%, 33,33%, 48,48%). Moreover, even if most respondents admitted that DH is compatible with the field of Humanities (96,97%), that their university needs a higher degree of digitalisation (100%), or that DH can help them improve their expertise in the area of their specialisation (96,97%), few of them were able to provide a short and consistent definition of what the concept of DH is:

- "Providing help to researchers and teachers in Humanities and perhaps making their expertise known internationally so they can better collaborate with members of other HEIs";
- "Using digital technologies in humanities, in presentations, publishing, research, teaching";
- "Digital Humanities represents the complementarity of technology and humanities (language, literature etc.), which aims to effectively process diverse corpora that can be explored via digital tools";
- "I think Digital Humanities refers to the usage of digital resources in order to study certain subjects of the humanities in a different manner";
- "Digitalizing instruments to do research in Humanities" etc.

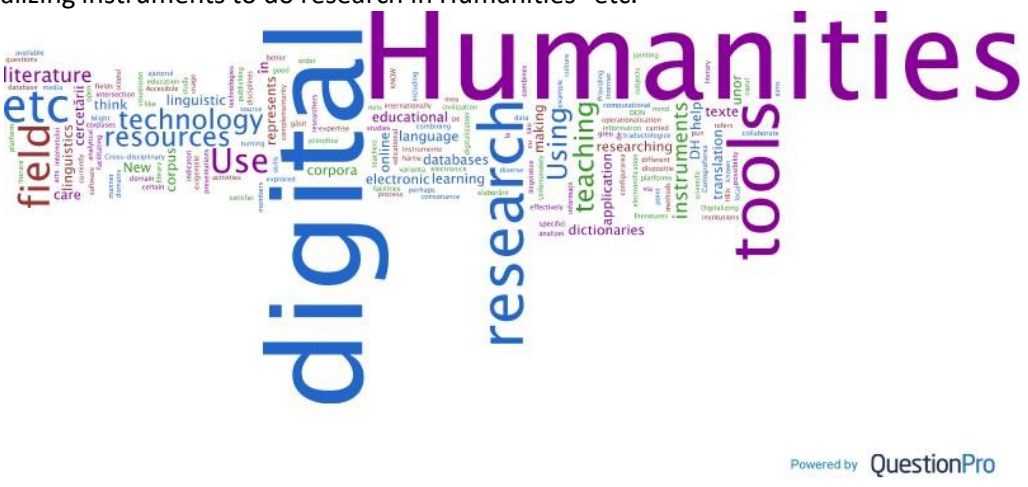

Figure 7: Word cloud based on DIGITS responses regarding DH

Nevertheless, our respondents believe that initiatives in DH would be most beneficial to department coordinators (42,42%), university decision makers (45,45%), current students (48,48%), prospective students (48,48%), institutions, helping them gain higher enrolment rates (59,38%), useful to teaching staff (66,67%) or to research staff (87,88%). Such initiatives can contribute to better research project acquisitions rates and funding (90,62%), better university ranking (90,62%), national and international networking (93,75%), better dissemination impact (93,75%).

All in all, it appears that, even though digitalisation is appealing and its importance acknowledged, "an ethos of suspicion pervades the public reception of the digital turn, paradoxically sharing the stage with an uncritical enthusiasm" (Ursa 2015: 81). In order to better illustrate how DH initiatives can be deployed and spread at the national level, we will have a closer look at the Romanian context.

4 The case of Romania

4.1 Digital Humanities initiatives

In Romania, apparently, the fortunate situation is encountered, where reputable reform prone universities have launched initiatives centering on the field of Digital Humanities. For instance, DigiHUBB (Transylvania Digital Humanities Centre[41],) from Cluj-Napoca, is already accepted in EADH (The European Association for Digital Humanities) and has an official journal, *Studia UBB Digitalia*, with four issues as of November 2019[42], containing studies focused on digital classics, ancient history, economy, e-commerce, data visualization, e-Diplomacy, digitisation etc.

Similarly, the Faculty of Foreign Languages and Literatures from the University of Bucharest has recently introduced (fall 2019) the master program *Digital Humanities* in English, whose objective is to "form graduates capable of mastering digital technology and apply it to practical problems in the humanities"[43]. At the same university, the Research Institute of the University of Bucharest (ICUB), through the Institute for Research in the Humanities (IRH, its research division), conducted a series of DH meetings "to explore various tools, methods, and research challenges at the crossroads between the traditional humanities and digital methods"[44]. Also, the Human Language Technologies Research Center, based in Bucharest[45] (Faculty of Mathematics and Computer Science, University of Bucharest) already has a tradition in projects regarding computational linguistics or discourse analysis.

More and more inter-university networks have been created, such as the INTELLIT Platform (*Romanian Literary Patrimony Preservation and Valorization by using Intelligent Digital Solutions for Extracting and Systematization of Knowledge*) developed by the Institute of History and Literary Theory "G. Călinescu" (IITL), in partnership with "Lucian Blaga" University of Sibiu (ULBS), the National Institute for Research and Development in Informatics (ICI – Bucharest) and the Polytechnic University of Bucharest (UPB), aiming to enhance the "Romanian literary heritage by disseminating it in digital format"[46]. A similar project, but at a European level, with many partners (Romanian as well), is the European Literary Text Collection (ELTeC), a collection of repositories each containing a balanced selection of novels from the period 1840 to 1920, created by the COST Action CA16204[47], aiming to collect at least a total of 1,000 full-text novels from at least 10 different European languages. The Romanian scholars contributing to the database are from "Babes-Bolyai" University of Cluj-Napoca and from the "A.I. Cuza" University of Iasi. The Polytechnica University of Bucharest and its partners also developed ReaderBench, "an automated software framework" providing "text mining techniques, advanced natural language processing, and social network analysis tools"[48].

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41 More information at: https://digihubb.centre.ubbcluj.ro/.

42 More information at: https://digihubb.centre.ubbcluj.ro/journal/index.php/digitalia/issue/archive.

43 More information at: https://www.facebook.com/aslsro/photos/a.10152173484968722/10156527298718722/?type=1&theater.

44 More information at: https://irhunibuc.wordpress.com/digital-humanities/.

45 More information at: http://nlp.unibuc.ro/.

46 More information at: https://intellit.ici.ro/en/about-intellit/impact/.

47 More information at: https://www.distant-reading.net/eltec/.

48 More information at: http://www.readerbench.com/.

As noticed in international context (see, for example, the Data Intensive Digital Humanities within Linnaeus University Centre), a typical configuration of data-intensive DH centres involves the creation of trans-disciplinary research groups where experts in the Humanities work together with experts in computer sciences. This is the case of the Research Institute for Artificial Intelligence "Mihai Drăgănescu" (Bucharest), which works together with the Institute of Computer Science (Iași). The group developed, among other internationally-recognised projects, in 2014, *CoRoLa, The Reference Corpus of Contemporary Romanian*, which contains corpora from 1989 until nowadays and aims to offer "an objective image of contemporary written and spoken Romanian"[49].

In conclusion, it is encouraging that Romanian HEIs have launched several strategic models of DH initiatives which can be part of reputable international networks. Although there is still much to be done down this road, considering that in Western European countries such initiatives grow naturally and obstacle-free within the classical fields of Humanities, the evolution of newly found centres, such as the one presented in the next section, with both challenge and impact assessment, can serve as seeding grounds for other universities in the region.

4.2 CODHUS – a new DH centre

Anchored within the long-term institutional vision of the Faculty of Letters, History, and Theology of the West University of Timisoara to pursue a new strategy for the further development of its language departments, a team of researchers (including members of the ROGER project[50]) founded a data-intensive Humanities research centre, CODHUS[51] (Centre for Corpus Related Digital Approaches to Humanities[52]), in October 2019. CODHUS is an applied e-research centre supporting studies, course implementation and testing, as well as the development of digital methods and tools (primarily corpus-related) for disciplines in the Humanities.

The motivation for the initiative resides in the need to keep up with new developments in the rapidly evolving field of Humanities and related research. Although traditional philological approaches will not be abandoned, it is generally agreed on that the increasing use of technology in research and education, as well asthe emergence of digital method use and implementation as key competences even in rather traditional Humanities areas (e.g. literature studies) make it necessary to foster a new understanding of the roles and functionality of technology-supported research in Humanities. The applicability profile of the centre is reflected by the connection between digital methodologies in the Humanities with focus on corpus-related topics with the wider topic of applied linguistics.

CODHUS is a transversal scientific organization, including scholars from different departments. For instance, the CODHUS centre has gathered researchers interested in applied linguistics, translation studies, history and archaeology, but also literary studies, especially literature created by or in the digital environment, in which poetry meets computing in a content creation algorithm. CODHUS aims to involve colleagues from the Department of Computer Science, interested in developing solutions for the implementation of digital methods in the study/ research of the Humanities fields.

4.3 Challenges for CODHUS

Although the majority of the teachers and decision-makers involved in the founding of the new e-research centre are in agreement as to its importance, the inclusion of new members proved to be a difficult task. This was due to general lack of expertise in the field and reluctance towards working with new methods. However, through departmental events and workshops, several young researchers were convinced to start experimenting with digital methods and tools for the investigation of their own topics. The challenge of attracting members was overcome by opening up possibilities of research in their own areas of interest instead of proposing approaches that are completely out of their expertise. Also, the

[49] More information at: http://corola.racai.ro/.
[50] More information at: http://roger.projects.uvt.ro.
[51] More information at: https://codhus.projects.uvt.ro/.
[52] In Romanian: Centrul de Cercetare și Implementare a Metodelor Digitale Bazate pe Lingvistica de Corpus cu Aplicabilitate în Științele Umaniste.

centre needs to build up in visibility and prestige before being granted access to national and international networks:

Given the particular nature of the centre, several research networks and associations dealing with similar topics will be targeted for applications to be included in their groups. At the national level, Asociaţia Română pentru Inteligenţă Artificială/ ARIA (Romanian Association for Artificial Intelligence), for example, will ensure the visibility of the new research strengths of the West University of Timisoara. Other initiatives, such as ARLC/ Asociaţia Română de Lingvistică Computaţională/ ARLC (Romanian Association for Computational Linguistics) or Association of Researchers in Theoretical and Applied Linguistics (ARTA) are also possible candidates for national networking.

At the international level, there are many associations and scientific networks which the faculty members involved in the centre will subscribe to after they gain expertise in various fields related to CODHUS: for example, NeDiMAH (Network for Digital Methods in the Arts and the Humanities), CLARIN (European Research Infrastructure for Language Resources and Technology), AILA-Europe (European Association of Applied Linguistics), LCA (Learner Corpus Association), EADH (European Association for Digital Humanities) or the British Association for Applied Linguistics (BAAL).

5 Discussion and conclusions

5.1 Impact of DH centre creation in Eastern Europe

The expected impact of the activities promoted by any DH centre should be: enhanced individual research profile of university academics (by engaging in regular training and knowledge-transfer activities of the centre), increased institutional research capacity (by activating collaborations and initiating new projects) and the wider societal impact (through the possibility of educating various target groups - decision-makers, local community or the wider public). At the same time, creating an e-research centre increases the chances of the university to have access to:

- More funded projects: The amount of approved research projects should increase considerably. For example, a quick look at the most recent list of approved projects in the Humanities in Romania indicates a low rate of projects focusing on digital methodology use (out of 165 projects, only 1 project deals with digitalisation of data and 2 projects deal with corpora). The analysis of European approved projects (CORDIS) also indicates the scarcity of Romania-specific research projects dealing with digital methods (or digital humanities, corpus linguistics, digital linguistics, applied humanities studies) in the Humanities;
- University funding: The creation of a research centre will also result in more funding (research centres are funded additionally) for research projects, which will, in their turn, finance support sub-entities;
- Better ranking: The increasing in research excellence will trigger an increase in national and international rankings of the university, which will also attract more money from the Ministry of Education;
- Attraction of top-level researchers: The prestige and financial sustainability of a DH research centre will also attract top-level qualified researchers which will further contribute to an increase in the university's capacity to attract funding and in its appeal to students.

5.2 Integrating e-research in the Humanities in the Bologna Digital strategy

The digital competencies have become indispensable qualifications of a successful student or academic. By founding a new DH centre, several Bologna process' aims are pursued: building expertise in digital method use in teaching and research in the Humanities contributes massively to the enrichment of the digital skill portfolio of both students and teacher-researchers. Nowadays' students, faculty members and researchers need to be interconnected via the Internet, they need to use mobile applications, computer-mediated tools and interactive platforms in order to obtain/exchange information, practice/deliver/assess learning content, compile/analyse datasets and, ultimately, design/test/construct new digital products.

Even though e-research is not directly related to the policies proposed by the Bologna process (such as ECTS, digital transcripts of records etc.), it encompasses the use of computing infrastructures which

enable the transfer from raw information to scientific outputs. "Sharing of database, IT infrastructure, knowledge and skills and much more" (Gupta and Müller-Birn 2018: 1663), associated with digitalization, are aspects that offer numerous improvements which engage both teachers and students in taking further steps towards the *Europe of Knowledge*. Dominated nowadays by the digital turn, HEIs' dynamics reveals that digitally enhanced environments contribute to organizing, processing and analysing data and knowledge, facilitating higher visibility, transparency, accessibility for students from all backgrounds, equality for all learners (also for those subject to mobility, whether physical or virtual opportunities), comparable degrees and qualifications, cooperation in quality assurance and harmonisation of measures used in this process. All of these aspects succeed in providing a learner-centered and open HEI (focal points of the Bologna process), an "education area with digital solutions" (Rampelt 2019). Moreover, the Bologna process brings an increased demand of innovation and excellence in teaching and learning, which cannot be achieved without high quality of scientific work and research (Aparac-Jelusić 2016: 76). Competitiveness and alignment to international standards are brought through research clusters, which can reduce drawbacks of researchers in developing countries.

More precisely, Eastern European countries should focus on improving quality in education and research, in order to prepare students for the new digitized workplace and strengthen their economic position, thus reaching competitive levels of development. In fact, e-research initiatives in Eastern European HEIs are representative for the struggle of digitization in the region, since they offer the possibility to reflect upon the cultural, and the social dimensions of such new stategies which aim at creating an innovative bond between the computational skills, the digital environments and the research areas in an interlinked manner: any DH centre or initiative "is fairly well-understood as a mechanism for advancing individual research goals, supporting faculty enrichment, striving for institutional alignment with scientific paradigms for enterprise-level research, as well as a hub" for training (Opel and Simeone 2019). Such centres represent "precisely the place where this professionalization work can take place, as a site of experiential, cross-disciplinary, cross-rank, academic-industry collaboration", "a space of contact for graduate students from the humanities and STEM disciplines who are approaching issues of shared concern" (ibid.), a space of contact for both "digital natives" and "apprentice-research assistants" (Murphy and Smith 2017), creating a network of "decentralized learning and teaching processes [along with research strategies] which are detached from spatial and temporal constraints" (Beidkamp and Kergel 2018: 43).

5.3 Conclusions

E-research strategies in higher education institutions in Eastern Europe can be described as transformational, which echoes the broader developments in implementing digitalisation policies. In our study, we have used several resources for the evaluation of the standard digitalisation implementation processes in Eastern European HEIs: overview of digitalisation measures taken by representative institutions in the region, a survey focusing on e-research in Eastern Europe (DIGITS), and observations, supported by statistical reports on the success of e-research initiatives in the Humanities based on the rate of project funding or prestigious publications. By collating all these resources together, we conclude that the Humanities research community in Eastern Europe is at the crossroads of breaking away from the traditional models by starting to implement, in the first place, basic digital skill strategies (use of e-library, elearning and digital communication platforms). Countries such as Serbia, Hungary, and Romania (in the last five years) are somehow more advanced in point of establishing internationally recognised e-research centres (see, for example, the Belgrade Belgrade Center for Digital Humanities). However, the amount of high-impact publications and the low number of EU funded projects originating in the region's HEIs is still considerably lower compared to the Western European universities.

The reasons for the set-back seem to be complex and manifold. First, the challenges to implement Bologna goals have historical-traditional roots (i.e. difficulties in separating from the HE originating in the Soviet tradition). Second, as some answers in DIGITS survey reveal, faculty members lack expertise in e-research. On the other hand, what DIGITS has also highlighted is the belief of the respondents (an average of that 90%) that a DH initiative at their universities would have an impact on teaching, research, research

funding, international networking and international ranking. There seems to be a direct correlation between the survey results and striving for equality of chances, fairness and inclusion in higher education, stipulated by the Bologna process.

We included into the study the presentation of the newly found Romanian e-research centre CODHUS, proposing it as a replicable project in any other Eastern European university. Launching such e-research initiatives in the Humanities aims at filling a Bologna-Digital strategic gap by empowering research agents with the role of facilitating the access to, training and expertise building in digital methods and tools. DH centres, which have been more and more active and prominent, lately, at the international level (see, for example, the project database of EADH[53] or ACDH-CH[54]), can create visibility for international collaboration with the purpose of methodology training and capacity-building support. The overall design of such e-centres is based on the simple principle of providing state-of-the-art research training and supervision to the faculty members, prioritizing early-stage researchers so that they can serve as multipliers of excellence in their home institution and country.

In our view, building the e-research capacity of the language-related Humanities departments, especially at Eastern European HEIs, whose research impact parameters (e.g. funded project, publications) are lower than those of Western European HEIs can have a bootstrapping effect on the Bologna-Digital strategy, at the regional level: support actions for change-resistant research communities, both as historical-geographical group, i.e. Eastern European HEIs, and cultural-disciplinary group, i.e. Humanities, should encourage the community members to adopt the latest developments in digitalisation strategies, including the ones aiming at improving basic digital literacy skills. We argue that the founding of a DH centre, as a practical and effective digitalisation-promoting strategy, contributes to the rapid improvement of digital skills and e-research expertise of all research agents and their close academic environment (i.e. researchers, university teachers, students), thus turning into a successful intervention to mitigate disparity between Eastern and Western HEIs.

[53] More information at: http://eadh.org/projects.
[54] More information at: https://www.oeaw.ac.at/en/acdh/acdh-home/.

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