



Erasmus+

Tina Bettels-Schwabbauer, Nadia Leihs

Gábor Polyák, Annamária Torbó

Ana Pinto Martinho, Miguel Crespo

Raluca Radu & FJSC team

NEWSREEL

New Skills for the Next Generation of Journalists

◇ Research Report ◇




ABOUT THE PROJECT

Journalists have an essential role in the new media landscape as a pillar of credible and contextualized information. Being in competition with several alternative forms of news, non-professional or even deliberately manipulated news, professional journalism should be empowered by new competencies and skills. Opportunities enabled by digital technologies, such as processing, analysing and visualising large amounts of data, as well as multi-sectoral and digital cross-border co-operations, open new fields of journalistic activities, and new ways to speak about public issues. However, this environment also entails technical and economic risks, and demands expertise in IT security, as well as the development of business models and strategies from journalists and media companies. Journalists face several ethical challenges that should be handled to meet their social responsibilities. Fake news and hate speech have become major issues in the public sphere, as have whistleblowing and activism. By improving skills of a new generation of European journalists, NEWSREEL will contribute to the strengthening of the common European democratic public sphere. It will do so by improving collaborative and cross-border journalism that is able to elaborate and make tangible the huge amount of available data, and which is based on a predictable business strategy and a firm ethical foundation. The main goal of the project is developing e-learning materials connected to four fields: data journalism, new business models, collaborative journalism and ethical challenges. All educational materials produced by the project will be made openly and freely accessible through open licenses via the project's website.

Contact

Annamária Torbó

 +36 72 501 561

 newsreel@pte.hu

 <http://newsreel.pte.hu>

Project Partners:

Erich Brost Institute for International Journalism ([EBI](#)), TU Dortmund, Germany

University of Pécs (PTE), [Institute for Communication and Media Studies](#), Hungary

ISCTE-University Institute of Lisbon ([ISCTE-IUL](#)), Portugal

University of Bucharest (UB), Faculty of Journalism and Communication Studies ([FJSC](#)), Romania

Disclaimer

Responsible according to press law: Prof Dr Susanne Fengler

Language editing: Derettens OÜ; derettens-english-language-editing.com

Layout: Christiane Reinert

Title photo: Judith Wiesrecker

The following authors contributed to this report: Tina Bettels-Schwabbauer, Nadia Leihs, Susanne Fengler (EBI), Gábor Polyák, Annamária Torbó, Éva Varga (PTE), Ana Pinto Martinho, Miguel Crespo, Gustavo Cardoso (ISCTE-IUL), Raluca Radu, Antonia Matei, Anamaria Nicola, Marian Popovici, Manuela Preoteasa, Emilia Șercan, Oscar Stănciulescu (FJSC/UB).

TABLE OF CONTENTS

INTRODUCTION	06
STATUS QUO	08
NATIONAL CONTEXTS	08
Romania	08
Hungary	11
Germany	13
Portugal	15
DATA JOURNALISM	16
Romania	19
Hungary	20
Germany	21
Portugal	21
COLLABORATIVE JOURNALISM	22
Romania	24
Hungary	24
Germany	25
Portugal	26
INNOVATIVE BUSINESS MODELS	26
Romania	29
Hungary	31
Germany	31
Portugal	32
ETHICAL CHALLENGES	33
Romania	36
Hungary	37
Germany	38
Portugal	38

TABLE OF CONTENTS

RESEARCH RESULTS	39
General information on the curricula under study	40
Romania	44
Competences for future journalists	44
Analysis of selected curricula	46
Innovation in journalism education and the media	49
Hungary	53
Competences for future journalists	53
Analysis of selected curricula	55
Innovation in journalism education and the media	59
Germany	66
Competences for future journalists	66
Analysis of selected curricula	68
Innovation in journalism education and the media	74
Portugal	80
Competences for future journalists	80
Analysis of selected curricula	82
Innovation in journalism education and the media	86
LESSONS LEARNED, INSIGHTS GAINED	90
INTERVIEW PARTNERS	93
MEDIA VENTURES AND ORGANISATIONS	96
LITERATURE	100

INTRODUCTION

The journalism profession has, in the last few decades, changed radically because digitalization required journalists to gain new knowledge and skills. Journalism will continue to be exposed to innovation, there will be no resting phases, and they will have to readjust constantly. Thus, the education of journalists will have to continually make progress and adapt to the new developments in the media industry. In recent years, journalism educators have been particularly challenged by the growing importance of technical competences, including data journalism, as well as new media business concepts. Splendore et al. (2016, 147) consider that “current developments in data journalism prompt an increasing need among journalists – and their teachers – for new knowledge and skills”. Gillmor (2016, 816) states that it “is vital for journalists to know how to communicate with programmers”. He also stresses the importance of teaching students to understand media business concepts, as “today’s students will be among the people who develop tomorrow’s journalism business models” (Gillmor 2016, 816).

The need of new skills is also reflected in the demands of journalism students: For example, a survey of 227 German future journalists¹ showed that journalism education and training in Germany could be improved, particularly regarding technical and entrepreneurial competences (Gossel 2015). Similarly, a study of journalism students’ satisfaction from Romania indicates that students want more vocational courses, related to the current developments in the field, and want to work more with technical equipment (Ionescu 2016, 132). Against this background, this report was set up to gain insight into the status quo of innovation in journalism and academic journalism education in four European countries with a focus on data journalism, collaborative journalism, innovative business models and ethical challenges of the digital public sphere. The project team consists of journalism and media scholars from the *University of Pécs* (Hungary), the *Erich Brost Institute for International Journalism* (Germany), the *ISCTE – University Institute of Lisbon* (Portugal) and the *University of Bucharest* (Romania). Interviews with 25 journalism educators and 21 leading journalists working in at least one of our four fields

¹ 60.8% of the respondents had studied journalism; the others studied other disciplines or did a traineeship (Volontariat) in a newsroom.

from Romania, Hungary, Germany and Portugal were conducted between February and May 2018. Our benchmarking research has shown that journalism education as well as the progress of journalism regarding our four fields is quite different in each of the four countries, but there are also many similarities.

For each of the four participating countries, our research design included (1) an analysis of the curricula of six selected journalism programmes at public and private universities and universities of applied sciences, (2) in-depth interviews with representatives from the six chosen programmes, and (3) in-depth interviews with five to six journalists who are experienced in at least one of the four fields.

This report is the result of the first phase of the project “New skills for the next generation of journalists” funded by Erasmus+. The project is embedded in the action type “Strategic partnerships for higher education” and will run for three years until August 2020. Based on the results of our study and the work of other media scholars and professionals we believe, that knowledge of the fields of data journalism, collaborative journalism, innovative business models and journalism ethics will be essential for future journalists. Mastering any of these fields includes the need to observe trends critically, and decide what skills are important to secure journalistic standards and press freedom and what tools might be helpful for journalism to evolve further. For these reasons, in the coming phases of our project, we will develop teaching materials for the afore-mentioned four fields. These courses will then be delivered at the participating universities and institutes as a pilot teaching activity. In the final phase of our project in 2020, an international cross-border investigative project based on data journalism techniques and involving students from all four participating institutions will be organised. In addition, a glossary of key terms and a teacher’s guide will be developed. All educational materials produced by the project will be made openly and freely accessible through open licenses via the project’s website <http://newsreel.pt.e.hu/> in English.

STATUS QUO

In the following, we will give a short overview on the national contexts of journalism and journalism education in Romania, Hungary, Germany and Portugal, and define our four foci of interest: data journalism, collaborative journalism, innovative business models and new ethical challenges for journalists.

NATIONAL CONTEXTS OF JOURNALISM AND JOURNALISM EDUCATION

ROMANIA

The number of journalists working in Romania cannot be accurately calculated: “There is no official figure for the number of journalists practicing in Romania, though the Federation of the Journalists’ Trade Unions (*Federatia Română a Jurnaliștilor Mediasind*) claimed to have over 9,000 members out of a total of 22,000 journalists” (Avădani 2017, 1978). A closer estimation from January 2018 may be around 5,000 journalists or less in Romania.

Most Romanian journalists struggle with insecure economic circumstances and ill-defined working contract conditions (*ActiveWatch* 2014, 7), and the situation has worsened since the economic crisis of 2014 (*ActiveWatch* 2016, 9). Oligarchic structures dominate the mainstream media and have led to a journalistic culture of misinformation, disinformation and other forms of manipulation (Zielonka 2015, 19).

The *National Institute of Statistics (INS)* states that in 2015 19,038 employees were working in the publishing field. However, the category also includes book publishing, and there is no clear separation between the different publishing activities (*INS* 2017, 538). The *INS* states that about 9,541 people were employed in the broadcasting and programming field in 2015, but this number again not only includes journalism, but also, for example, the production of motion pictures.

During the past decade, some of the most respected journalists – with professional track-records at the *BBC*, *Deutsche Welle* and quality newspapers – had to leave their newsrooms to avoid pressures by the owners of the media outlets or because their investigative newsrooms or sections were closed because of financial constraints. Together with other freelancers, they started forms of alternative journalism, often facing an unfriendly economic environment, but preserving their professional values. Most of them started to work part-time under tough financial constraints and became dependent on project-based financing. Moreover, they started to experiment with forms of media convergence, and made use of the emergence of digital tools, such as computer assisted reporting (CAR), to revive their profession by attracting new audiences and to work in a cost-effective manner. Of a sample of 100 Romanian journalists, 40 had Bachelor's diplomas in journalism, 12 postgraduate diplomas in journalism and 15 certificates in journalism (University of Bucharest 2012). For the 2017/18 academic year, at Bachelor's and Master's level, journalism related courses were found in two different academic domains: communication studies (journalism and digital media) and theatre studies (journalism about theatre). At Bachelor's level, 22 universities offer such specialisations: 17 public and five private universities, respectively. At Master's level, seven universities, all public, have programmes related to journalism or digital media. A reasonable estimation for the journalism student population, at Bachelor's and Master's level, is around 2,000 to 2,500 in the 2017-2018 university year, for both public and private universities. Most Bachelor's graduates in social sciences, journalism and information studies continue their studies in Master's programmes in similar fields (ARACIS 2017a).

Courses offered by other institutions, outside academia, seem to be gaining popularity among students (Ionescu 2016, 107). Of a sample of 100 students, 23 said they had taken external courses and attended different types of workshops or schools: TV, radio, film and investigative journalism courses, and conferences on journalism and leadership. Several media companies, such as the *Intact Media Group* and *Decât o revistă*, offer paid courses in TV anchoring and creative writing, while several non-governmental organisations (NGOs) offer free courses in investigative journalism or data journalism, with the help of international financial support.

Most journalism and communication faculties develop their curricula as a response to two main

factors: the requirements of the *Romanian Agency for Quality Assurance in Higher Education* (ARACIS) and the academic expertise of their permanent and part-time staff (Coman et al. 2018). At present, journalism schools have to have courses on media ethics, newsgathering and reporting, and online production in their curricula (ARACIS 2017b). However, there are no national standards on what these courses should actually cover. “Although the Ministry set up the national curriculum as a requirement for obtaining accreditation for journalism programmes, there are differences in application between the institutions. The faculties where journalism is the main area of study are more skills-oriented than those operating within a larger faculty, such as a faculty of communication studies or foreign languages” (Ionescu 2016, 103). As a result, most universities have not yet updated their curricula to embrace the present developments in the industry: data journalism, international collaborations, or the current challenges related to media ethics and economics.

There is little research in the field of journalism education. The research focuses on the need for media literacy courses (see, for example, Preoteasa et al. 2010), rather than on the actual journalism curriculum. After 2010, the academic curricula underwent changes as a result of pressure from institutional actors, such as the *Agency for the National Framework of Qualifications* (through the *DOCIS* project, see Mogoş and Meza 2013), and in response to job market pressure. Yet, the changes have not been analysed systematically or in any depth by researchers. Mogoş and Meza (2013), for example, notice a change in the curriculum of the *Babeş-Bolyai University of Cluj-Napoca*, which they are part of. The change refers to an attempt to develop critical thinking and online entrepreneurship, but they do not analyse the academic offer in a more systematic way.

Most articles published by Romanian researchers during the last few years are about the challenges newsrooms had to face in the digital era, not the changes in academia. Academic literature discusses how news organisations have adapted after the economic crisis, and how they managed the transition from analogue to digital and from print to online news production. More recently, research has increasingly focused on the changes in the interaction between consumers and producers in the digital era, convergence and social networks.

HUNGARY

In Hungary the number of journalists can only be estimated: Róka, Frost and Hanitzsch (2015) estimate that there are around 8,000 working journalists. The researchers interviewed a sample of 389 Hungarian journalists and found that the majority of them (around 60%) held full-time positions. About 25% of the interviewed journalists worked part-time and about 10% as freelancers. Most journalists in the sample worked for private or public service television (around 37%) or for print media (around 34%, including daily and weekly newspapers and magazines). About 17% worked for stand-alone online news sites, and around five percent for the online newsrooms of traditional media. Around seven percent worked for private or public radio, and two percent for news agencies. It is striking that around 40% of the interviewed journalists had additional jobs outside journalism (Róka, Frost and Hanitzsch 2015, 1).

There is little research about media and journalism education in Hungary. There is only one comprehensive and recent research study about journalism education and media studies, the “Research about Hungarian Media Programs”. This was initiated by the *Association of Hungarian Content Providers* in 2013, and was led by Balázs Weyer, the chairman of the *Editor-in-Chief’s Forum Hungary* (Weyer et al. 2015). The researchers found that the current educational system in Hungary does not adequately prepare future journalists for the different fields of the media.

The study “Research about Hungarian Media Programmes” found that 37 Hungarian institutions offer communication, media and journalism programmes; 21 of these operate in higher education; the others are higher vocational training or training locations operated by publishers and newsrooms. The number of training locations has been continuously decreasing: in the school year 2012/13 such programmes were offered by 37 institutions, in 2013/14 by 26 to 29 institutions and in 2018/19 only 15 higher education institutions offered communication and media programmes (Felvi 2018a). Of these, two are state-approved ecclesiastical universities and three private universities; the rest are public universities. All of them offer three-year-long Bachelor’s programmes (BA), and 10 of them offer two-year-long Master’s programmes (MA).

As Weyer et al. (2015, 11) state the Hungarian media scene, as well as other areas of the economy, are very much in need of fellow workers with media literacy and media skills. This is in stark contrast

to statements from the government, which, in 2013, complained about the unjustifiably high number of students and graduates in the field of communication and media studies.

Weyer et al. (2015, 20) underline the importance of establishing journalism as an independent discipline in Hungary's higher education, at least at Master's level. So far, students interested in journalism can only study at departments that offer communication and media programmes, some of which offer a journalism specialisation. The public *University of Pécs*, for example, offers the specialisation 'Press and electronic media', and the private *Budapest Metropolitan University* has set up the 'Integrated media' specialisation. As a result, it is difficult to tell how many of the students who applied for communication and media studies are planning to become journalists. Weyer et al. (2015, 17) calculated that about 5,000 to 5,500 students were enrolled in programmes of communication, media and journalism studies in 2013/14, and predicted that this number would decrease in the following years due to the universities' higher admission requirements, the reduction of state-sponsored places in public higher education and the spread of the perception that those programmes already produce too many graduates.

Other downsides of journalism education in Hungary are the lack of teaching staff who have practical journalism experience as well as academic experience, the lack of adequate handbooks and other relevant literature in Hungarian, and the lack of an effective internship system that enables students to gain practical experience in parallel to their studies. However, according to a new regulation, all students who have started their studies from the winter semester 2016/17 will have to do an internship of 80 hours minimum, preferably in the last semester of their studies (HAC 2016).

Most higher education institutions focus on theoretical approaches, while neglecting the students' needs for practical training. However, the private universities seem to be much more flexible than their public counterparts and some have introduced new programmes and specialisations to meet market needs, such as working on social networks or other fields of digital journalism.

Journalism schools outside the higher education system also seem to have adapted much better to the needs of the Hungarian media scene, and they offer courses that usually provide more practical knowledge than the university programmes. Often, media outlets themselves run their own academies focusing on their specific media type, among them the second biggest commercial television

channel TV2 and the *Central Media Group* which owns the online portal *24.hu*. The *Bálint György Journalism Academy*, specialising in print and online, is operated by the national association of Hungarian journalists, *MÚOSZ*.

GERMANY

Weischenberg et al. (2006) estimate that the number of journalists working in Germany was 48,000, excluding freelancers and photographers. Their study is considered to be the most comprehensive current study of the German journalism market. In a smaller scale study, Steindl et al. (2017, 411) estimated that the number of journalists working full-time in 2015 was 41,250 and noted that this number is constantly falling (1993: 54,000, 2005: 48,000); in contrast to Weischenberg et al. they included freelancers. The German Federation of Journalists (*DJV* 2017, 4) estimated that about 73,000 journalists were working in Germany in 2017, including 7,000 journalists working in press offices.

Most journalists work for newspapers (13,000), magazines (9,000) and broadcasting (9,000). About 3,000 of the working journalists were undertaking traineeships (*Volontariat*), and about 27,000 journalists were freelance. More and more journalists were working for online media, the number increased from 2,500 in 2006 (Hooffacker and Meier 2017, 18) to about 4,000 in 2016 (*DJV* 2017, 4). Since the 1970s journalism education has been divided into two branches: on the one side journalistic practical training in newsrooms and journalism schools, and on the other side academic journalism education, which was first introduced in universities, and later in universities of applied sciences (Hömberg 2010). Hence, today there are several ways to become a journalist: complete an academic programme, enrol in an independent journalism school, or in one owned by a publishing house, or do practical training in a newsroom for two years, the so-called *Volontariat*, a German particularity. Most journalists undertake a mix of the different types of journalism education.

A study from 2014/2015 surveying a sample of 775 German journalists, found that only 16.4% had specialised in journalism, and 12.6% had studied another communication field (Hanitzsch et al. 2016, 1). Another study found out that only 37% of journalists undertaking a traineeship (*Volontäre*) had decided on media studies, while about 40% percent studied humanities (Hooffacker and

Meier 2017, 203). Although the number of courses concerning media and journalism in Germany is very high - there are 32 Bachelor's and 27 Master's degree programmes which educate journalists, and even more communication science and media studies programmes (Hooffacker and Meier 2017, 184-200), the number of students is relatively low: in 2010 about 3,700 students started their first year and about 2,600 finished their journalism studies (DJV n.d.).

In general, the number of journalists who complete practical education is increasing (Hooffacker and Meier 2017, 204), while the number of journalists who did not finish academic or practical education or did not attend journalism school is decreasing (Hooffacker and Meier 2017, 223). There is definitely an increase in the proportion of academic graduation (Steindl et al. 2017, 414-415). In 2016, about 96% of the trainees had finished or were about to finish their academic education, in contrast to about 17% in 1979 (Hooffacker and Meier 2017, 179). About 60% already had practical experience as freelancers before they started their traineeships (Hooffacker and Meier 2017, 203). Academic journalism education is still regarded sceptically by media professionals in Germany; for most of them a *Volontariat* plus specialised studies are the silver bullet for becoming a journalist (Dernbach 2016, 476). To date research has only covered descriptions of the changes in the media and journalistic job market (see, for example, Donsbach et al. 2009; Meyen and Springer 2009; Weischenberg et al. 2006) and no reliable systematic research or long-term studies on the journalism profession in Germany has been undertaken, as Dernbach (2016, 483) laments. Continuous evaluation, updating of curricula and re-evaluation of the programmes would be necessary to make them fit for the requirements of the modern media, but this is hindered by financial constraints (Dernbach 2016, 483).

Currently, the academic and journalistic communities agree that journalism education needs to adapt faster to the realities of the media industry, which is reflected by many teaching institutions developing new courses and adapting old ones to the needs of future journalists. Most authors underline the importance of teaching "core practices" like investigating, writing or contextualising information, as well as embracing the new requirements such as an "online first" approach, basic knowledge of issues such as audience research, search engine optimisation, media economics and management, and the use of the relevant software for new formats, data driven research, and social media tools

(see, for example, Hooffacker and Lökk 2017, 43-44; Sadrozinski 2013, 92-93).

PORTUGAL

Around 6,000 to 6,500 journalists are currently working in Portugal according to the Portuguese Journalists' Professional License Committee (*Comissão da Carteira Profissional de Jornalista*). In January 2017, there were 6,114 registered journalists, but there are some who work without registration.

Of around 2,500 to 3,000 media students, 25 to 50% focus on journalism (around 700 to 1,500 students). The Portuguese Education Ministry reports that there are 67 Bachelor's, Master's and PhD programmes related to journalism at 18 universities and 12 universities of applied sciences; 20 of these institutions are public and the other 10 are private. The public institutions offer 43 programmes, and the private institutions 24 programmes.

Most of these programmes do not have the term journalism in their title but offer courses on journalism. The majority of the programmes are labelled 'Communication Sciences', followed by 'Journalism Studies' and 'Media Studies', and a mix of the three concepts (i.e. 'Communication and Journalism' or 'Media and Journalism').

There are also journalism programmes outside universities, at training centres like *Cenjor* or professional schools like *Etic*, which offer a two-year journalism course resulting in a Higher National Diploma.

Based on a survey from June 2016 involving 1,491 journalists in Portugal (around 25% percent of the total), 79.6% of professional journalists have a Bachelor's degree, and of those 13.4% have a Master's degree and 1.5% have a PhD. Most of the journalists with a degree have studied media and communication sciences (40.5%) or journalism (26.2%). Of those surveyed, 9.7% said they were currently studying at university or undertaking training (Crespo et al. 2017).

Only a few institutions have reacted to the needs of the media industry and have integrated new programmes focusing on data journalism and business aspects into their courses. The training centre *Cenjor* has run a short-term course on data journalism since 2012, the *Instituto Universitario de Lisboa (Iscte-Iul)* has taught a one-semester course on data journalism since

2013 and a post-graduate course in information visualisation since 2017. Both institutions have also offered courses on entrepreneurial journalism since 2013. At the *Universidade Católica de Lisboa* and *Iscte-Iul* one-semester courses on media economics and management are offered.

DATA JOURNALISM

The digital revolution has fundamentally changed the way journalists gather, analyse, interpret and present information. The Internet has facilitated opportunities for accessing open data, government and non-government databases and software that allows the gathering and analysis of vast amounts of data, and therefore has contributed to the emergence of a new type of journalism speciality: data journalism.

One of the hopes that many authors have expressed, is that data journalism might become a means to consolidate democracies, as it allows journalists to execute their watchdog function (Gray et al. 2012, 7). Parasie and Dagiral (2013, 854) consider that the use of data by journalists might strengthen journalistic objectivity, hold governments to account more effectively and allow the political participation of citizens by including them in the process of data production and analysis. Furthermore, “databases are an efficient means to bring public issues to the public’s attention and thus to influence the political agenda” (Parasie and Dagiral 2013, 855).

Most authors agree that data journalism includes several operational steps, such as searching, collecting, cleaning, validating, organising, analysing, visualising, and publishing data for journalistic purposes (Berret and Phillips 2016, 15; Howard 2014, 4). In practicing precision journalism, media professionals started to use social science research methods to question and present the available data. This development can be tracked from the first emergence of computer-assisted reporting and application of statistical concepts to journalistic investigations to today’s highly sophisticated software, such as web scraping tools and routinely invoking public records law to obtain data.

Data has become a further source of information that can be used to “complement human witnesses, officials, and experts” (Howard 2014, 4-5). Some authors go even further in their definition and understand data as a unique source that allows journalists to investigate issues of public concern that were not accessible before: “[I]n our days, data [...] take the main role; stories can be found

through data bases” (Alazañez-Cortés et al. 2017, 412). As technological development proceeds, so does data journalism. Therefore, Aron Pilhofer from *The New York Times* proposes an extended definition: “Data Journalism is an umbrella term that, to my mind, encompasses an ever-growing set of tools, techniques, and approaches to storytelling. It can include everything from traditional computer-assisted reporting (using data as a ‘source’) to the most cutting-edge data visualization and news applications. The unifying goal is a journalistic one: providing information and analysis to help inform us all about important issues of the day” (as quoted in Gray et al. 2012, 6).

There is a notable differentiation between the terms data and information: while data most often comes in alphanumeric symbols, numbers or letters, and can be understood as “facts about processes, phenomena or elements of the real world” (Vrabec 2015, 544), information is rather understood as the result of processing, evaluating and presenting data, and drawing conclusions from it. Scott Klein (2016) considers that the first signs of what is now called data journalism were visible in the 19th century, when the streets of New York City provided good conditions for cholera. The disease started in 1832, leaving 3,000 people dead; a number that increased to more than 5,000 deaths in 1849. To show the expansion of the disease, *The New York Tribune* published a chart that compared weekly cholera deaths to total weekly deaths. The comparison helped readers to see that while total deaths declined, cholera deaths were on the rise.

The story of computer-assisted reporting (CAR) began in 1952. The mathematician Grace Murray Hooper and a team of programmers in collaboration with the US-television channel CBS used voting statistics from earlier elections to predict the victory of Dwight Eisenhower before voting was closed, despite the polls that indicated that Illinois Governor, Adlai Stevenson, would win. Elections are a very juicy press subject, and this desire to accurately predict the winner of the elections led in the 21st century to an almost perfect prediction about Barack Obama’s first presidential bid.

Another milestone in the history of data journalism was the 1967 investigation into the causes of the Detroit riots, by journalist Philip Meyer. He won the Pulitzer Prize for the *Detroit Free Press* and soon after he published one of the most important books about computer-assisted reporting, titled *Precision Journalism*. “Since the 1960s, [mainly investigative, mainly US-based] journalists have sought to independently monitor power by analysing databases of public records with scientific

methods. Also known as *public service journalism*, advocates of these computer-assisted techniques have sought to reveal trends, debunk popular knowledge and reveal injustices perpetrated by public authorities and private corporations” (Gray et al. 2012, 18).

From the mid 1990s, database-grounded journalism grew rapidly as more computerised data became available, first on tapes, then CD-ROMS and finally online (Parasie and Dagiral 2013, 856). One of the most important institutions that helped to promote data journalism was the establishment of NICAR (*National Institute for Computer-Assisted Reporting*) at the University of Missouri, which became a nucleus for this new type of journalistic investigation by offering training and a starting point for a network for data journalists (Berret and Phillips 2016, 22). The rise of data journalism challenges journalistic professionals to go beyond their present abilities and embrace new opportunities: “Regardless the type of media content, the ability to work with data should be one of the basic abilities of every media professional. A journalist must understand what the data represents, its characteristics, the way it was acquired and processed, the source it is from and what it actually means. Otherwise there is a real risk that he will uncritically accept any figures and data and rely on their interpretation by authorities from external environment” (Vrabec 2015, 544).

Since the mid 1990s, data has been the starting point of many investigations. Starting in the mid-2000s, some news organisations from the United States (e.g. *The New York Times*, *ProPublica*) and the United Kingdom (e.g. *The Guardian*) have hired programmers, data analysts and graphic designers to help and contribute to producing advanced and original online news products. In 2009, *The Guardian* launched its popular *Datablog*, and five years later, *The New York Times* followed with *The Upshot*. Tools for gathering, cleaning, organising, analysing, visualising, and publishing data are now developed by universities, technology companies and independent software engineers. The field is developing with the help of online groups, fellowships and competitions at national and international level, and as a result of grants, such as the 2011 *Knight News Challenge*, which allowed 25 newsrooms across the United States to facilitate data analysis. The technological progress has influenced journalism practice in a decisive manner and the collaboration between computer scientists and journalists changed not only journalistic production, but also consumption practices. Today, spreadsheets and databases are commonplace in newsrooms. Two recent global investigations, the *Pana-*

ma Papers (2016) and *Paradise Papers* (2017), indicate just how far data journalism has evolved. “Despite the startlingly high volume of automated stories, algorithmic reporting still remains only a minor aspect of journalism considered in the round. Yet it does highlight some difficult questions for the profession” (Hammond 2015, 414).

ROMANIA

In Romania, stories based on data are rare and have usually been developed by non-profit media or project-based journalism. While highly profiled professionals frequently use data journalism to build a solid story, mainstream media structures (with some notable exceptions, especially in the online newsrooms) disregard data or try to manipulate it.

As a technique associated mostly with investigative reporting, and sometimes with economic reporting, data journalism is not exploited on a large scale in Romania. Investigative journalism, in-depth journalism, and economic journalism have significantly diminished in the mainstream media. However, major media outlets do use data journalism during elections times. Although the Romanian audience and journalists are open to innovative ways of packing information, including apps and other automatized forms, one main obstacle remains: media conglomerates have an ideological message to broadcast, and no interest in investing money and human resources in more accurate, databased and, therefore, more elaborated media products.

Paradoxically, small enterprises, often supported by partnering non-governmental organisations (NGOs), have been active in using data journalism in a globally competitive way. There are a few influential groups of journalists who act independently from the mainstream structures that dominate the Romanian media landscape and are highly innovative concerning their business models and their journalistic approach, namely the *RISE Project*, *OCCRP (Organized Crime and Corruption Reporting Project)*, *CRJI (Romanian Centre for Investigative Journalism)*, *CIM (Centre for International Migration and Development)*, *Decât o revistă*, *Casa jurnalistului* (The journalists’ house), and the newly-launched *Recorder*.

In 2003/2004, a group of investigative journalists and members from not-for-profit organisations (i.e. the *Centre for Independent Journalism*) launched *mediaindex.ro*, the first data-

base of media owners across Romania, revealing through visual tools the relationships of the media moguls within and between their conglomerates. In 2009, a project-based multimedia report with over 69,000 views², was produced and published by Vlad Mixich and Laurențiu Diaconu-Colintineanu with the support of *The Carter Centre* and was simultaneously published on *Deutsche Welle* and *HotNews.ro*. It was a multimedia report on mental health, mainly on depression³. With *RISE*, another prominent project started in 2012, as a group of investigative journalists, visual artists and programmers used databases and visualisations to track down cross-border money laundering by suspects of organised crime and corrupt officials (*RISE Project* 2013, 2).

These organisations do not restrict themselves to journalistic investigations and publications but develop and share tools for analysing data or visualising it. The *Rise Project*, for example, used its funding by grants to develop the open-source and free of charge *Visual Investigative Scenarios* (VIS) that can be used for mapping and complex narratives, and the *Investigative Dashboard*, a data visualisation platform designed to assist investigative journalists, activists and others in mapping complex business or crime networks. In 2016, several journalists joined the technocrat government of Dacian Cioloș and presented public data through appealing data visualisation. Today, these tools are used mainly by not-for-profit organisations for civic activism campaigns, for example the *Expert Forum* and *Observatorul Român de Sănătate* (Health Observatory), and by political opposition parties like the *Uniunea Salvați România*⁴.

HUNGARY

There is only one Hungarian journalist who is regularly working with data journalism and data visualisation tools. Attila Bátorfy works for the investigative portal *Átlátszó* and operates a blog on data journalism. In the only analysis about data journalism in the Hungarian media Bátorfy (2015) came to the conclusion that “the Hungarian content industry is basically text-based” and the online media “works still with the toolbox of the print and broadcast media”. He declares that the economic weakness of the media makes it difficult “to convince a financial director that he/she needs a journalist

2 Number of views only on HotNews.ro, <http://www.hotnews.ro/stiri-esential-6116249-venit-urta.htm>. The report was simultaneously published on Deutsche Well, where the number of views is not accessible, <http://www.dw.com/flashes/urata/rom/urata.htm>.

3 *A venit urâta* (The Ugly Came)

4 Union to Save Romania, <https://www.facebook.com/USRNational/>

with special knowledge whose work cannot be measured by pieces". The biggest news portals, *Index* and *444*, also use data visualisation in some of their articles, and some NGOs have data visualisation projects (often in cooperation with media outlets). As an example, *Mertek Media Monitor* has a data visualisation project for showing the role and changes in state advertising.⁵

GERMANY

The handling and the interpretation of data is becoming increasingly important in journalism (see, for example, Sadrozinski 2013, 93) in Germany, although the number of journalists who consider themselves data journalists is still relatively low. In their explorative study on the role conceptions of data journalists Weinacht and Spiller (2013, 416) identified 35 individuals who defined their work as data journalism. A more recent overview of data journalists in Germany and Switzerland by students of the TU Dortmund University (2015) lists an additional 16 German data journalists.

Data journalism in the form of visualising facts and data is not completely new to German journalism, newspapers as well as news formats in TV are used to illustrate their reporting with graphics and other data-driven illustrations. However, as technological progress better allows for different and interactive forms of data mining and visualisation, the number of media outlets experimenting with data journalism is rising. Interestingly, most data journalism teams in Germany are led by women (Matzat 2015, 262).

The content of data driven reporting range from political reporting, such as results of elections, and ecological problems, such as air pollution, to local stories, such as the development of housing rental prices, and entertainment, such as the strike rate of soccer celebrities. The field is still an emerging one, but the body of research (Rinsdorf 2016, Wormer 2017, Castell, Schultz and Glasstetter 2018), as well as of teaching material online and in print, is growing (e.g. Sturm 2013).

PORTUGAL

Data journalism is not a common practice in Portuguese newsrooms. This kind of journalism is at a very undeveloped stage, in theory and in practice. A Master's thesis on the subject (Pinto Martinho 2013), reports that only some newsrooms have recognised the importance of data

⁵ State advertising 2006-2017, <https://mertek.atlatszo.hu/state-advertising-2006-2017/>

journalism. One of the main problems is the lack of conceptual and technical skills for the practice of data journalism.

COLLABORATIVE JOURNALISM

The *Panama Papers* investigation, led by the *International Consortium of Investigative Journalists* (ICIJ) and German newspaper *Süddeutsche Zeitung* (SZ), is the largest worldwide collaborative journalism project in history⁶. More than 400 journalists – among them reporters, editors, computer programmers and fact-checkers – from nearly 80 countries (including the countries covered in this study), working in 25 languages, collaborated on the *Panama Papers*. They exposed offshore companies linked to more than 140 politicians in more than 50 countries. (Hudson 2017, ICIJ.org n.d., *Sueddeutsche.de* n.d.)

Collaborations between journalists and news organisations are gaining importance, especially for those concerned with investigative and accountability journalism. Collaboration allows them to join resources and expertise to investigate issues of public relevance for example in the fields of politics, business, trade, and crime – both at a pan-national and a cross-border level (Alfter 2016, Alfter 2018, Sambrook 2018). When there are massive amounts of data involved, there is a particular need for journalists to collaborate and support each other (Sambrook 2018, 94).

In recent years, cross-border journalism projects in particular have attracted a lot of attention due to their mutually shared investigations of highly relevant stories in a wide range of different countries despite different languages and journalism cultures, and their simultaneous targeting of regional, national and international audiences (Alfter 2017, 30).

The cross-border *Panama Papers* investigation is an outstanding demonstration of what defines collaborative journalism: sharing and non-competitive thinking (Cohn 2010, Alfter 2016 & 2018). In collaborative journalism, fellow journalists and newsrooms do not see each other as competitors, they have joined forces “for the amelioration of their organisations, their products and their audiences” (Stonbely 2017, 17). Also, Howe et al. (2017, 2) see “the beginning of a kind of sea-change, from a news industry that was competitive and siloed to one inclined toward sharing, cooperation, and transparency”. Howe et al. (2017, 3) observe that in innovative media outlets the “traditional

⁶ <http://panamapapers.sueddeutsche.de/en/> - The *Panama Papers* investigation, led by Bastian Obermayer (interviewed for this analysis) and Frederik Obermaier from the German newspaper *Süddeutsche Zeitung* and the ICIJ has been the largest worldwide collaborative journalism project in history with around 400 journalists in around 100 countries working on it. Obermayer acquired about 2.6 terabytes of data within a year, making it the biggest leak that journalists had ever worked with.

newsroom Balkanized production into departments—design, photo, research, city, sports, classes” will be replaced by collaborative environments which will “allow nimble, multifaceted teams to self-organize”.

While there is general agreement that competitive thinking is counterproductive to collaborative journalism, the dimensions of a potential cooperation vary enormously. Stonbely (2017, 14) sees collaborative journalism solely as “a cooperative arrangement (formal or informal) between two or more news and information organisations”. She distinguishes six types of collaborative journalism along the features temporary or on-going, and in terms of the production of content by the collaborating partners in separate, co-creating or integrated working teams (Stonbely 2017, 20-50).

Koch (2018, 64-77) also considers NGOs such as *Transparency International* as valuable cooperation partners, and Alfter (2018, 42) believes that “any cooperating team of disparate character” can participate in collaborative journalism, such as journalists and scholars. Alfter has thereby widened her definition from 2016, which initially focussed on cross-border journalism. Her view is that collaborative journalism includes four features: 1) any cooperating team, e.g. journalists from different countries or journalists and scholars, who 2) cooperate on a shared theme or story, 3) compile, mutually crosscheck and ultimately merge their findings to 4) individually fact-check and publish these findings adjusted to their national, local or otherwise specialised target groups.

Hultén and Edwardsson (2017, 13) underline the importance of cross-disciplinary teamwork between journalists and engineers. They “need to work more closely together in project-oriented teams” to be able to create new products and services for the media industry.

Most scholars emphasise that collaborative journalism is not to be confused with citizen-, participatory- or networked journalism that seek information from the public (e.g. Stonbely 2017, Sambrook 2018), however Stonbely (2017, 4) allows “an engagement element” to be part of a collaborative project. For others, like Bradshaw (2013), audience participation is an essential element in collaborative journalism. He considers that collaborative journalism is “a way of pursuing stories that involves people outside of the traditional newsroom”, e.g. crowdsourcing with the help of social networks and online communities.

ROMANIA

Different forms of collaborative journalism can be identified in Romania. Apart from professional journalists working with professional journalists (peer-to-peer), in the non-profit media business, journalists have collaborated with activists for civil rights, and other NGOs. Finally, collaboration with Internet users is also a source of stories or at least of angles in approaching some topics, usually implemented through specialised platforms for interactions or even through social media.

The pioneers of independent journalism in Romania (sometimes called alternative journalism) have become promoters not only of new formats of reporting (i.e. data journalism, storytelling), but they have also started to experiment and implement new business models, sometimes in a desperate attempt to secure their work against interferences by media owners, politicians and advertisers. Some freelancers gathered, formed not-for-profit organisations (NfPOs) and made joint, collaborative efforts in drafting and implementing projects. Organisations like the *RISE Project*, or the *Romanian Centre for Investigative Journalism*, as well as the journalists of the *Casa Jurnalistului*, the *Centre for Media Investigations*, and *Recorder* started through collaborative efforts. More recently, *Casa Jurnalistului*, the *Centre for Media Investigations*, and *Dela0.ro* have launched a new collaborative project, titled *Să fie lumină* (Let there be light). Some NGOs, e.g. the *Fundația pentru o Societate Deschisă* (Open Society Foundation) have trained journalists in using public open data and exercising their legal right to access public open data. Collaborative projects were also funded in one of the financing rounds of the *Digital News Initiative* supported by *Google* or by other donors such as the US-based *Knight Foundation*.

Apart from using the information revealed by *WikiLeaks*, the most relevant collaborative efforts are linked to the *Panama Papers*, where the *RISE project* got involved along with 100 other media outlets from across the world. Media professionals are open to collaborations on a large scale, but such efforts are initiated by individual journalists rather than by the profession itself.

HUNGARY

There are three types of collaborative journalism in Hungary. First, the investigative journalism team *Direkt36* publishes its results on its own portal as well as on one of the biggest Hungarian

news portals, *444*, and on the news programme of the largest private television channel, *RTL Klub*. This is an important way of collaborating because *444* and *RTL Klub* do not have enough personnel to carry out their own investigative projects, and the reach of *Direkt36* alone would be much smaller. Second, the Hungarian journalist András Pethő took part in the *LuxLeaks* project, and *Direkt36*, which was established by András Pethő and his colleagues, was the Hungarian partner of the *Panama Papers* (Pethő 2016) and *Paradise Papers*. A third form of collaboration emerged that of cooperation between journalists and NGOs. For example, *Transparency International Hungary* leads a mentoring programme for young journalists and the results are published in particular weeklies and news portals.

GERMANY

The need for collaboration means a complete reversal of perceptions and practices for German media organisations as well as for individual journalists as previously, competition and exclusivity were predominant professional patterns. This perception is slowly changing, with new collaborative-oriented media organisations emerging and established media houses embracing the new trend.

Currently, the following types of collaboration can be identified in German journalism: 1) collaboration between single journalists, for example in the ICIJ which coordinated the global investigations on major leaks such as the *Panama Papers* and the platform *n-ost*; 2) collaboration between different media houses on a national and European level, such as the cooperation since 2014 between the newspaper *Süddeutsche Zeitung* and the broadcasters *NDR* and *WDR*, and the *ic.network* (Lilienthal 2017, 3), 3) buying-in investigation and presentation expertise from specialised journalist agencies like *Correctiv*, 4) intra-organisational collaboration between journalists, programmers, graphic designers and experts for marketing and sales, 5) collaboration between the media and its audiences (crowd-sourcing, participative journalism).

So far, research has focused on the emergence of new collaborative-oriented media organisations, such as *Correctiv* (Lilienthal 2017). The attempts of established media outlets to cross the borders of their own newsrooms, and forms of collaboration between journalists and other professional groups, as well as with parts of their audience, have not yet been widely addressed by scholars.

PORTUGAL

Portuguese journalists and the media have been involved in reporting of all the major leaks. Two journalists, Rui Araújo, from the TV channel *TVI*, and Micael Pereira, from the weekly newspaper *Expresso*, participated in the investigation of the *Panama Papers* and *LuxLeaks*. Micael Pereira also worked with *WikiLeaks*. Paulo Pena, from the daily newspaper *Público*, is part of the *Investigate Europe* project that aggregates nine journalists from eight European countries.

INNOVATIVE BUSINESS MODELS

One of the biggest challenges media businesses are facing is the redefinition of distribution and consumption patterns, shifting from traditional channels such as print, real time radio and TV to online, including digital formats like on-demand videos and podcasts. This digital revolution demands media workers and managers to consider a change from the former one-size-fits-all business model to a panoply of tailor-made models, often only fitting just one product (Bastos and Zamith 2012, 118-119).

The legacy media business model worked well for centuries. Newspapers were financed by copy sales (by piece or by subscription) and advertising; with the advent of commercial radio and TV an advertising-only business model was developed besides public broadcasting models, and also applied to free newspapers and magazines (Bastos and Zamith 2012, 114-115).

In the 1990s, however, “the internet disrupted the revenue stream” (Gorman 2015, 97). The arrival of the Internet as a distribution platform and the growth of online news media have created a new ecosystem with major challenges: mixed results in experimenting with paid content, radically decreasing advertising prices for legacy media, and the increasing competition for advertising revenues online while audience numbers are also decreasing. “The working assumption now seems to be that print advertising revenues will continue to decline, and will probably disappear in the foreseeable future” (Kueng 2017, 18).

“The fundamental problem facing the mainstream news media is that its audience is declining” (Beckett 2008, 20). While the distribution numbers for copy sales are steadily shrinking, the number of successfully implemented paywalls for journalistic content online is still small. Furthermore, ad-

vertisers move ever-increasing shares of their budgets away from legacy media to non-media online services such as *Google* and its subsidiary *Youtube*, or *Facebook*. “We’ve had a transition from print to digital, from digital to mobile, from mobile to social media, and we’ve always lost chunks of the cake, big, big pieces of our advertising cake. (...) Long term there will not be enough money in the markets to finance a big journalism team”, explained a representative of the *The Daily Telegraph* (in Kueng 2017, 18).

These developments led the traditional media business model to collapse, forcing legacy media as well as the new online-only media outlets to innovate and develop new ways to get revenue streams (Bastos and Zamith 2012, 132).

New business models that work successfully in the long-term are hard to find. So far, most media outlets have experimented in parallel with different approaches. However, there are some major trends and best-practice examples worldwide that range from different advertising models, paid content, sponsorship and membership, to selling non-media products (Prieto 2015, 164-166).

Paid content models usually make use of different forms of online paywalls (Foà and Cardoso 2016, 367). The freemium approach allows the audience to use part of the journalistic publication for free, but flanked with advertisements, while paying visitors can access additional content often free from advertisements. Users can pay either by subscription or by article. The metered paywall allows all users to access a limited number of journalistic pieces on a media’s webpage, this can be, for example, free access to one piece a day or five pieces altogether. After the consumption of the free pieces, users are asked to pay for access to further content. “Those newspapers that were to be able to make a success of charging for content were to be those that could focus on a defined community” (Hill 2015, 220). Different payment models allow for general subscriptions as well as fees according to personal interests (e.g. sports or lifestyle) or temporal preferences like access on different devices on workdays and at the weekend. Paid content aggregators, such as *Nonio* (for the Portuguese media) or *Blendle* (mainly for the German and Dutch media), allow users to access the content of several media outlets with one single account. Each media outlet earns a percentage of the overall revenue for its own traffic, while the aggregator gets a commission.

A different approach is the utilisation of native advertising, advertorials, and sponsored content, all

marked by a strong cooperation between the respective media outlet and advertisers. “Advertising revenues, ideally scaled native advertising revenues, are at the core of their [digital pure media’s] business model” (Kueng 2017, 19). The boundaries between these models are fluid, their aim is to target special audiences and boost the prominence of an advertising brand by exploiting the media outlet’s credibility. Basically, the brand pays for a dedicated area inside a media webpage. This space is used for a mix of editorial content from the media outlet, from the brand, and from guest authors who are specialists on a given subject. The content of advertorials is usually fully managed by the advertising brand. Sponsored content is generally produced by the media outlet and paid for by a brand but is always clearly marked as sponsored content. This model allows the media outlet to fund a larger share of expensive content prior to its production.

The involvement of the audience or other sponsors to finance journalistic production is the focus of a different type of business model.

The membership model is an evolution from the subscription model, allowing the audience not to merely subscribe to a media outlet, but rather to become a part of it, to participate in its development and editorial decisions. The extent of individual influence might depend on the membership status, for example *The Texas Tribune* implemented a membership system with nine different cost and benefit levels, ranging from a one-year membership (\$10, for students) to a chairman’s circle membership (\$5,000 annually).

Crowdfunding is usually less focused on subscriptions and more focused on the funding of single journalistic projects. Media outlets aim to create new projects or enhance existing ones through an open call to a large group of people to contribute with small sums of money, usually making use of crowdfunding platforms like *Kickstarter* or *Indiegogo*. Although not all projects go beyond this level, there have been very successful crowdfunding initiatives for journalistic projects. In 2012, the campaign for the podcast *99percentinvisible.org* raised 400% over the \$170,000 (ca. €143,000) pledge making it the highest-funded journalism project on *Kickstarter* at the time (Loker 2012).

Many media outlets worldwide have developed different editorial projects that have been sponsored by donors such as foundations or public institutions. This approach has not only helped media start-ups to secure funding for their first years in total or partially but has also allowed well-established

media outlets to experiment with new formats and other innovative modes of digital journalism. One downside of sponsorship and philanthropic funding is that the editorial content might be limited by the sponsors' goals. However, this business model led to the funding of the *The Intercept*, created by journalist Glenn Greenwald, and financed by *Ebay* founder, Pierre Omidyar.

Last but not least, media outlets have developed revenue streams from non-core businesses, selling products like books, movies, sports and leisure items, electronics and cutlery, and even leasing space. Subscribers can often purchase these products below market value. Another source of income can be the sale of internal know-how by content licencing, custom publishing, event organisation, editorial and communication consulting and training (Foà and Cardoso 2016, 364–368).

ROMANIA

New business models become more and more prominent in a media landscape that has almost fully succumbed to oligarchic interests (Coman, Popa and Radu, 2018). "It is not by chance that foreign investors have progressively abandoned the media field in CEE [Central European Countries] countries: they have seen their investments generating less and less profits while pressures from politicians and governments have become more intrusive" (Zielonka 2015, 19). In the mainstream media, instant journalism has replaced more elaborate forms. The public wants information very fast and in the shortest form possible, and editors give little time and resources to journalists to produce more complex media products. As a result, data journalism projects, for example, have been executed by the main online newsrooms for almost 20 years now, but mostly in projects financed by external donors, or through activities carried out voluntarily by journalists.

In the online media industry, businesses can hardly work within the classical advertising-based model, but use sponsored content or non-profit projects, or both. Small associations of journalists have set up either as not-for-profit-organisations (NfPOs), small companies, or both, to preserve their work without oligarchic interference.

For some time, the non-for-profit media business model seemed to be the only viable option for keeping investigative journalism alive. "The Romanian media market has undergone radical

changes since 2008, mainly due to two factors: first, the economic crisis, which pulled advertising money from the media and resulted in dramatic job cuts, owners' pressures on newsrooms and, eventually, a sense of journalistic despair; and second, the migration of the public from print and TV to online, for entertainment and, eventually, for news" (Coman, Popa and Radu 2018, 208). A new business model which has become increasingly valuable in the Romanian market is newsrooms set up as NfPOs – meaning as an organisation which does not act primarily to represent the profession or to protect journalists' rights, but as a media operation which produces professional reporting, and is financed on a non-profit basis.

These media NfPOs are usually part of international networks: the *RISE* project belongs to the *Organized Crime and Corruption Reporting Project (OCCRP)*, the *Romanian Centre for Investigative Journalism* is part of the *Global Investigative Journalism Network*. Their activity is often financed on a project-basis, and they attract their financing mostly from external international donors. Being connected to global initiatives, they easily deal with data journalism, collaborative methods of gathering and checking information and even simultaneously publishing the outcome. These organisations are flexible and innovative in fundraising, and, as part of the materials going viral, they can attract more support through crowdfunding. Although the amounts obtained from their audience are not high, they still illustrate a sign of trust. What is interesting is that once a media NfPO grows, the team of journalists might decide to split the for-profit activity into a media enterprise, which is what happened with *HotNews.ro*, one of the major independent Internet-based outlets, which was initially started as a NfPO, by a group of journalists and IT specialists.

Recently, more and more entrepreneurial journalistic projects, such as *Documentaria* (press photography, infographics and text) and *Să fie lumină* (investigative journalism about religious cults in Romania) are using data journalism and visualisation tools to approach public interest stories in a salient way for their readers and donors. "Journalism has been changing: there are no classical newsrooms, but more and more collaborative initiatives. The public has a more and more important role in the economy of alternative journalists, and publications that are doing their job well need crowd-funding donations and subscriptions", states the Friends for Friends

foundation on its website as an explanation of why the Super-Writing Awards 2017 are held. In addition, there are a few highly respected journalists who simultaneously work and collaborate with established media outlets in TV programmes and in newsrooms, and have set up their own companies or, at least, their own web-pages which are or can be monetized at some point (e.g. Moise Guran's *biziday.ro*).

HUNGARY

The Hungarian advertising market does not only suffer from declining revenues but also from the distorting effect of state influence (*Mertek Media Monitor* 2017). However, there are no paywalls, metered or freemium contents on the market. The only paywall experiment of the weekly newspaper *Élet és Irodalom* was changed to a unique advertising-based model: users can read all contents for free but must watch a 30-second-long ad that cannot be skipped.

The only form of alternative financing that the Hungarian media use is crowdfunding. The independent investigative teams from *Átlátszó* and *Direkt36* have regular crowdfunding campaigns which are quite successful. Further, the Hungarian tax laws make it possible for tax payers to name a civil organisation that will get one per cent of their tax. *Átlátszó* is an NGO, so it is entitled to receive this one percent, and it adds up to a very high proportion of its income. Crowdfunding is also used by one of the biggest news portals *444* but not as the main source of income, and by small local portals like *Szabad Pécs* (Free Pécs). How much they earn from crowdfunding is not made publicly available.

In 2017, the former editor-in-chief of the biggest news portal *Index*, Gergely Dudás, launched a crowdfunding campaign for establishing a news portal financed by subscriptions. However, this crowdfunding campaign was not successful, and the portal could not be launched (Petrányi-Széll 2017).

GERMANY

Due to technological innovation and the migration of users and content to the Internet German media institutions, that is, the print media, have struggled to adapt their monetization strate-

gies. All print media in Germany have experienced a decrease in income from the sale of print products and from advertising. Most of them reacted first by cutting costs, often worsening the work situation of journalists, or closing unprofitable newsrooms or media outlets altogether.

During the last ten years, a trend towards structural changes can be observed as more collaboration has taken place inside the media institutions and within cross-media practices (Sadrozinski 2013, 86). The German media has also experimented with various forms of paid-content models. In 2017, about one third of daily newspapers had set a paywall on their webpages; and the number of paid-for e-papers from magazines has doubled during the last five years (*PV Digest* 2018). Only very few newspapers hide all of their content behind paywalls, the majority still offer their online content free. Most media outlets are experimenting with freemium models (meaning that basic information is still free and only exclusive content, such as in-depth reporting or additional video material, is chargeable) or metered models (meaning that users can read a certain amount of text for free before being asked to pay (Kansky 2015, 88-91)). Two newspapers ask their readers for donations instead of installing paywalls (*BDZV* 2016).

Concerning more innovative business models, there are only very few examples of media organisations which have tried to secure their funding by crowdfunding, such as the collective *Krautreporter* (Schächtele 2015), or from foundations or philanthropic funding, such as the daily *die taz - die tageszeitung* (Bergmann and Novy 2013, 203) or the non-profit investigative newsroom *Correctiv* (Lilienthal 2017).

PORTUGAL

Media groups in Portugal are concerned about the changing nature of media business, and are experimenting with, and adopting, innovative revenue streams, like native advertising, branded content, metered paywalls, etc. Both legacy media and new media outlets are exploring these and other revenue streams, and some academic research has been undertaken in this area. The only national references are a global report, produced by *Iscte-Iul* on behalf of the Portuguese media regulatory body *Entidade Reguladora para a Comunicação Social* (ERC) in 2015, and a book from the same team published in 2016 about business models and the media (Cardoso et al. 2016).

ETHICAL CHALLENGES

The technological developments since the end of the 20th century have not only impacted on journalistic practices, but “[t]he global, digital age effects journalism ethics” (Wyatt 2014, xviii). As de Haan et al. (2014, 207) note, “[t]he entry of digital technology acts as one of the most significant factors changing the ethical practice of journalism today”, as one example they name the journalists’ dilemma of often having to decide between speed or verification and accuracy. The increase of journalistic investigations and publications online poses many other new challenges – besides the rather classical questions such as impartiality, conflict of interest, deception and betrayal (Muller 2014) – at the forefront is an ever-increasing amount of fake news that urges extensive fact checking, and dealing with hate speech in comments sections. Other ethical issues include questions arising from linking content from other sources, including content from citizen journalism and whistle blowers, handling large amounts of data as well as the products of digital visualisation (photo, video, graphics), plagiarism, and problems of privacy in the digital age. (McBride and Rosenstiel 2014; Foreman 2016; Muller 2014; Zion and Craig 2016)

Against this background of pressing ethical issues for today’s journalists, instruments of media accountability become even more important. McQuail describes media accountability as a process of co-orientation. “[A]ccountable communication exists where authors (originators, sources, or gatekeepers) take responsibility for the quality and consequences of their publication, orient themselves to audiences and others affected, and respond to their expectations and those of the wider society” (McQuail 2003, 19). Bardoel and d’Haenens (2004) have specified the different stakeholders potentially to be addressed in the accountability process: besides the public, they mention the journalistic profession and the market, as well as the political sphere – which facilitates a debate about the role of media accountability beyond Western democracies. However, media accountability instruments need to be understood as “any non-State means of making media responsible towards the public” (Bertrand 2000, 107). This encompasses the implementation of self-control bodies, such as press councils, the inclusion of actors outside the profession, such as users, NGOs and scholars into the debate about journalistic ethics, and the efforts of newsrooms to be transparent about their editorial processes and practices such as employing news ombudspeople.

Systematic research on discourses about media ethics studies started in the 1970s, and excellent overviews are provided by Brown (1974) and Marzolf (1991). Several widely-discussed journalism scandals in Western countries (e.g. “Jimmygate” in the US, and the “Hitler diaries” in Germany, for an overview see Fengler 2003) resulted in an increasing theoretical and normative academic debate, but only very few small-scale empirical studies on single instruments (mostly press councils, ethics codes, ombudsmen, and media journalism) existed until recently (for an extensive literature overview see Fengler et al. 2013).

Comparative research on the work conditions of European journalists and on the impact of media accountability instruments on their work is growing (Bertrand 2000, Nordenstreng 1999, Fengler et al. 2013, High Level Group on Media Freedom and Pluralism 2013), but the authors come to rather sceptical conclusions regarding the impact of many of these instruments. Studies have shown that even journalists who cover media issues for quality media shy away from criticising their colleagues and supervisors. The *MediaAcT* study (2013) concludes that Central and Eastern as well as Southern European journalists are more sceptical about the aim of improving ethical standards by transparency; while the majority of journalists from Northern and Western European countries were convinced (at least in theory) that being transparent about journalistic procedures, as well as publishing corrections and apologies, leads to more trust. The majority of journalists from Spain, Italy, Romania and Poland believed that publishing corrections or making newsroom processes transparent online will damage the bond of trust between journalists and the audience. Similarly, journalists from countries with a developed profession – characterised by established journalists’ unions or federations, and a tradition of journalism education, as well as developed infrastructures of media self-regulation – place considerably more emphasis on professional codes, while journalists in Southern and Central and Eastern Europe put more emphasis on company codes. Here, the newsroom is, or has the potential to be, *the* place to reinforce the rules of journalism.

Given the obvious insufficiency of traditional instruments of media self-regulation – which mainly result from the collective or individual self-interest of media professionals – engaging the audience and other actors external to the profession might be a promising option to strengthen media accountability (see Fengler 2012). With the advent of social media channels, like *Facebook* and *Twit-*

ter, journalists are faced with an increasing amount of feedback and criticism from their audiences. Younger journalists and those journalists who work for online media, are particularly open-minded about these innovative instruments and take into account the notable increase of critical audience feedback online (*MediaAcT* 2013).

Journalists have long been “society’s autonomous manufacturers of knowledge” and by this one of the pillars of democratic decision-making, but “modern newswriters no longer serve as an absolute gatekeeper” (de Haan et al. 2014, 207). Furthermore, the lines between professional journalists and citizen journalists or digital activists, who can address broad audiences, are blurred. The latter are not usually familiar with the ethical norms professional journalists are obliged to comply with and are not involved in the workflow and control mechanisms of newsrooms. At times, journalists themselves mix their roles when being active as bloggers and *Facebook* users. The question of making a distinction between professional journalists and other creators of online content is not only a theoretical problem but causes problems for both journalists and audiences (Simon 2015).

The handling of large amounts of data by journalists throws up a panoply of ethical questions: often information can be received without knowing the identity of the sender which poses problems when checking the reliability of the data. The influence of *WikiLeaks* on journalism might be seen as an example (Muller 2014). Dealing with sources and data in a digital environment also questions the ability of journalists to technically and legally protect their sources.

Journalists and audiences alike are faced with an unprecedented amount of fake news and with misinformation campaigns, notably on social media. Therefore, journalists need to set up rules on how to use information from social media sources. Furthermore, journalists often find themselves as the target of vicious attacks, being called liars and the source of fake news themselves, in an attempt to undermine of the credibility of the whole profession. In the current post-truth era, it is crucial for journalists to work transparently and professionally, based on a clear ethical framework, in order to counterbalance the spreading of disinformation, and to distinguish journalism from other forms of public communication (High level Expert Group on Fake News and Online Disinformation 2018; Russ-Mohl 2017; McBride and Rosenstiel 2014).

A related topic is the treatment of harmful comments in the comments sections of the media. Comments from the audience can be a valuable source of feedback and discussion, but offending contributions can damage both the participants in the discussion and the reputation of the media outlet (Muller 2014). Media outlets have to take on the responsibility of dealing with feedback from their audiences in better and more creative ways.

Furthermore, journalists today are more than ever pressed to be the first to publish. This is not only problematic when it comes to fact checking but has led to the practice of some journalists regularly taking articles from other media outlets and publishing them under their own name. Plagiarism is not only a legal problem, but also a problem for pluralism of the press as the diversity of voiced opinions shrinks when news is only copied, but not investigated.

ROMANIA

Several ethical challenges related to the development of digitalization, the Internet and social networks have to be mentioned for the Romanian market. They are seldom discussed in the media or in the professional community and little research has been done on the subject. Currently, the most pressing issues for the Romanian media are the influence of the social network Facebook on the public's access to news, and poor journalistic professionalism.

In Romania, there are 9.6 million Facebook accounts for a population of 19.63 million. The top ten Romanian pages include six singers and bands, one bodybuilder, the page of a TV celebrity with a mixture of miracle cures and inspirational quotes, and two media brands, *Playboy Romania*, that ceased all activity in September 2017, and *ProTV*, a mass-market TV station (*Facebrands* n.d.). The rise of social media has increased competition for attention and for advertising money. While there is an abundance of research on politicians and social media and on cyber-activism, little has been done so far on *Facebook*-based journalism. The phenomenon is on the rise and can be seen, for example, from the fact that the news title "tough reaction on Facebook" ("*reație dură pe facebook*") was found by *Google* 6,510 times on 29 January 2018. This *Facebook*-based journalism has led to *Facebook*-made politics and *Facebook* activism, to directly reach audiences and to be covered by mass media.

Plagiarism and poor newsgathering procedures might be named as two examples of the lack of journalistic standards in some Romanian media. Plagiarism exists mostly in the form of copy-paste journalism, with journalists copying out press releases, press agencies materials, and content from social media or from other journalists. The reaction to this practice in the profession is almost inexistent (see Lazăr and Radu 2012), and discussions around plagiarism cases related to key political figures indicate that journalists and analysts even have difficulty in understanding plagiarism in its many forms. On the other hand, the abundance of advice in the media on naturalist, traditional treatments and wonder cures for serious medical conditions (see, for example, Tivadar 2017, Radu 2017) illustrate most vividly that journalists do not make sufficient use of basic newsgathering techniques and do not refer to authoritative sources. These materials are kept in online digital archives for years, in order to gather visitors and to monetize on cheaply produced articles, no matter what the possible consequences might be on audience members.

HUNGARY

In the Hungarian media landscape, ethical problems, such as fake news and hate speech, have a special framework: political communication from the government is sometimes based on elements that show some similarity to phenomena like fake news and hate speech. The only fact-checking website is operated by the think tank of the governing party (*factcheck.hu*). In these circumstances, media accountability instruments that are well established in Western Europe are not applicable, as ethical and professional criticism easily turn into political statements. This leads to a rather problematic self-conception of journalists. Because of the high degree of political parallelism, journalists are often acting as political activists. Furthermore, the self-regulatory bodies have no real power to force ethical rules into practice and to stimulate the professional discussion. In 2018, the online journal *Mediapiac.com* launched a debate on journalism ethics focusing on the question of whether journalism ethics can hinder the disclosure of stories of social importance, with special regard to the Hungarian media situation. So, ethical debates in Hungary are still dealing with classical ethical issues.

GERMANY

The debate about the rise of hate speech and fake news in Germany involves not only scholars and media professionals but occupies the wider public. Several media outlets and NGOs have reacted to the problem by setting up fact checking teams (Butzke 2017). Discourse on other ethical issues, which are still relevant for journalism, such as quality in journalism, source protection and privacy is often limited to scholarly and media professional circles, and is of a high quality and sophisticated (see, for example, Heesen 2016). In contrast, more current topics like Internet security, information justice, data freedom, transparency and surveillance are not limited to the journalistic field, but reach a wider audience through the media attention on conferences such as the *re:publica* and the activities of the *Chaos Computer Club* (CCC), and lively online debate (see, for example, Kappes et al. 2017).

PORTUGAL

The main ethical challenges for journalists and journalism in Portugal nowadays are fake news and the way to deal with them, problems with social media (the lack of revenue streams), the decrease of the power of journalism (and journalists), data journalism (privacy and surveillance issues), the use of algorithms (conditioning the access to news), artificial intelligence (autonomous news production), and independence (from media groups, new media companies – related to low income and unsecured employment). These ethical worries have resulted in a review of the journalists' ethical code, led by the Portuguese journalists' union.

RESEARCH RESULTS

For the following sections, we evaluated the curricula of Bachelor's and Master's degree programmes at six different universities and universities of applied sciences in each of the four participating countries and interviewed their representatives (N=25). Additionally, we interviewed 21 journalists with a wide range of expertise in data journalism, collaborative journalism, digital journalism and new business models (see table on pages 93-95).

The main aim of the research has been to investigate the perceptions of journalism educators and media professionals of the technology-driven changes during recent decades. Therefore, all interviewees were asked to name skills that journalists today should possess, and to reflect on how those skills have changed and how they could be taught. The interviews conducted with journalism educators were also used to gain more insight into the process of developing curricula for academic journalism education, and into the obstacles and constraints it faces in the four countries. Furthermore, all interviewees were asked to discuss best-practice examples for our four foci of interest.

The following sections present our results concerning the status quo of journalism education regarding data journalism, collaborative journalism, digital journalism, new business models, and innovative journalism practises in the respective countries.

GENERAL INFORMATION ON THE CURRICULA UNDER STUDY

Name of Institution / Name of Programme	University by Type of Funding	Degree Programme	Length of Programme	Number of Students	Entry Requirements	Founding Year	Number of Faculty Staff
Romania							
Alexandru Ioan Cuza University, Iași / Journalism	Public	BA	6 semesters	80	/	1989	Ca. 25
Babeş-Bolyai University, Cluj-Napoca / Journalism // Digital Media	Public	BA	6 semesters	196	Motivation letter (1st stage) and baccalaureate GPA (2nd stage)	1995	16 plus collaborators
University of Bucharest / Journalism	Public	BA	6 semesters	125	Written exam	1990	41 plus collaborators (ca. 20)
Lucian Blaga University, Sibiu / Journalism	Public	BA	6 semesters	50	/	1992	Ca. 20
Spiru Haret University, Bucharest / Journalism	Public	BA	6 semesters	100 (max. capacity)	/	1991 (reorganized in 2005-2006, 2008-2009, 2015)	24
Universitatea de Vest, Timișoara / Journalism	Public	BA	6 semesters	80	/	1992	Ca. 20
Hungary							
Budapest Metropolitan University (METU) / Communication and Media Studies / Integrated Media specialization (<i>integrated</i>)	Private	BA	6 semesters	ca. 90 30-35 in the integrated media specialization	/	2006 start of programme at METU's predecessor, the Budapest Communication College (BKF); in 2015 BKF changed its name to Metropolitan, and in 2016 it obtained the title of University	9 full-time lecturers for the Institute of Communication plus more than 20 visiting lecturers
University of Debrecen / Communication and Media Studies / Journalism specialization (<i>integrated</i>)	Public	BA	6 semesters	20-22 with one third in the journalism specialisation	/	Mid-2000s	9 academic staff members at the department plus visiting lecturers

Name of Institution / Name of Programme	University by Type of Funding	Degree Programme	Length of Programme	Number of Students	Entry Requirements	Founding Year	Number of Faculty Staff
Eötvös Loránd University, Budapest / Communication and Media Studies / Journalism specialization (<i>integrated</i>)	Public	BA	6 semesters	ca. 60	/	Specialization started in 2010	13 permanent staff members (mainly academics) at the department plus around 50 visiting lecturers per semester
Pázmány Péter Catholic University, Budapest / Communication and Media Studies / Journalism (Print and Electronic Media) specialization (<i>integrated</i>)	Ecclesiastic	BA	6 semesters	ca. 50 / ca. 15 in the specialization	/	Specialization started in 2014 (Faculty was founded in 1992, re-organised in 2012)	9 full-time lecturers for the Institute of Communication and Media plus visiting lecturers
University of Pécs / Communication and Media Studies / Print and Electronic Press specialization (<i>integrated</i>)	Public	BA	6 semesters	20-25	/	Specialization started in 2010 (Faculty was founded in 1992)	11 academic staff members at the department plus visiting lecturers
University of Szeged / Communication and Media Studies / Electronic Press + Print Press + Media Informatics specialization (<i>separated</i>)	Public	BA	6 semesters	Ca. 60	/	1992	Ca. 10 permanent staff members (academic and media professionals) at the department plus more than 20 visiting lecturers
Germany							
Catholic University of Eichstätt-Ingolstadt / Journalism	Public	BA	6 semesters	50	Numerus Clausus and two months internship before the beginning of the studies	2008 (the Bachelor study programme was preceded by the diploma degree programme which had been established in 1983)	3 professors, 9 research associates, 5 teaching staff members for special requirements, plus visiting lecturers
Stuttgart Media University / Cross Media Journalism	Public	BA	7 semesters	19	At least six weeks internship (or Volontariat / one-year freelancing) before enrolment	2001 (merger of two older education institutions)	11 for this programme, around 85 at the faculty „Electronic Media“

Name of Institution / Name of Programme	University by Type of Funding	Degree Programme	Length of Programme	Number of Students	Entry Requirements	Founding Year	Number of Faculty Staff
Technical University of Dortmund / Science Journalism	Public	BA	6 semesters plus one year traineeship	max. 17	Numerus Clausus and six weeks internship or six months freelancing before programme start	2013 (study programme "Journalism" since 1976)	Ca. 30 academic staff members at the Institute for Journalism
Macromedia University of Applied Sciences Cologne / Journalism	Private	BA	7 semesters	ca. 27	Personal interview, work samples	2007	1 professor for journalism, participation of other professors from media management and design, participation of other lecturers
University of Hamburg / Journalism and Communication Studies	Public	MA (consecutive)	4 semesters	32	Above-average first degree in either journalism/communication studies or media studies with a social science emphasis, or a social science subject with a journalism/communication studies emphasis; eight weeks internship before beginning of the studies	1982/83: study programme „Journalism“ as minor / 2001: study programme „Journalism and Communication Studies“ as major and minor (Magister) / 2006: Master study programme „Journalism and Communication Studies“	3 professors, 3 research associates (plus visiting lecturers, ca. 3 per semester)
Johannes Gutenberg University of Mainz / Journalism	Public	MA (non-consecutive)	4 semesters	25	Academic degree, two-days qualifying examination	1978 foundation of faculty, 2002 start of current Master programme	26
Portugal							
University Autónoma de Lisboa / Communication Sciences	Private	BA	6 semesters	n.a.	National exam in Philosophy, History or Portuguese	1989	26 teachers (some are in-house and others are external and working in areas like journalism)
University of Beira Interior / Communication Sciences – Minor in Journalism	Public	BA	6 semesters	45	National exam	1989	20 teachers

Name of Institution / Name of Programme	University by Type of Funding	Degree Programme	Length of Programme	Number of Students	Entry Requirements	Founding Year	Number of Faculty Staff
University of Minho / Communication Sciences – Minor in Journalism	Public	BA	6 semesters	67	Numerus Clausus and national exam in either Geography, Mathematics or Portuguese	1991	28 teachers
Nova University of Lisbon / Communication Sciences – Minor in Journalism	Public	BA	6 semesters	95	Numerus Clausus and national exam in either Philosophy, Economy, History or Portuguese	1979 (first in Portugal)	30 teachers, most of them are in-house professors, but there are some guest professors as well
University of Porto, Faculty of Arts and Humanities / Communication Sciences – Minor in Journalism	Public	BA	6 semesters	79	Numerus Clausus and national exam in Portuguese	2000	16 teachers
ISCTE - University Institute of Lisbon (ISCTE-IUL) / Journalism	Public	Post-graduate	2 semesters	20	General culture test, interview and evaluation of CV	2013	19 teachers, more than half are journalists or other media professionals

ROMANIA

COMPETENCES FOR FUTURE JOURNALISTS

The general opinion of the Romanian lecturers interviewed is that some of the old competences in journalism have not lost importance and are still of use. Gheorghe Clitan (*West University of Timișoara*) considered that there are some types of traditional journalism activities and abilities that continue to remain functional. Those related to the new digital forms of journalism are the ones that have changed, leading towards an increase in the technicality of journalistic activities. Alexandru Lăzescu (*Alexandru Ioan Cuza University, Iasi*) said that journalistic skills started to change around ten years ago and that an unclear combination with uncertain borders between traditional media and all sorts of other types of communication channels, like social media and blogging, has developed. Social media do not have the professional and deontological constraints that exist in the traditional media landscape and that is why it has become very complicated for journalists to evolve in such a noisy landscape.

Most of the journalists interviewed mention curiosity as one of the most important skills that journalists should have. Good general knowledge, the ability to extract information and explain it to the public, and critical thinking are other important skills. Journalists should also know how to use and verify sources. Passion, creativity and flexibility are also among the skills the interviewees listed.

The journalists interviewed agreed that standard journalistic abilities have not changed significantly in the last 10 years, but that today's journalists also need technology-related skills and digital abilities. The journalism educators interviewed also stated that journalists nowadays have to master many new competences. Gabriel Hasmațuchi (*Lucian Blaga University, Sibiu*) said that a journalist should know how to write journalistic texts, to edit audio and video, to use a camera and a voice recorder, and should be able to adapt to new technologies. Alexandru Lăzescu (*Alexandru Ioan Cuza University*) has an explanation for the requirement for journalists to have as many skills as possible. He thinks that there is a dramatic decrease in the number of journalists in Romania, so those remaining in the field need to cover more functions: video, audio and online.

Elena Abrudan (*Babeş-Bolyai University, Cluj-Napoca*) thinks that the importance of technical skills in the area of digital media has grown considerably during the last decade and that these skills should be built on media and information literacy, on in-depth knowledge of media and communication theory, new media culture and the new media ecosystem, so that journalists are able to adapt to new technological changes in the future.

As it is not feasible for journalists to learn only by doing in their working environment, most journalism departments change their curricula regularly by either adapting existing courses or introducing new ones, depending on how the media is evolving. Big changes, however, are often met with resistance, as lecturer Gabriel Hasmaţuchi (*Lucian Blaga University*) indicated for his faculty. Although higher education standards in Romania allow new courses to be introduced, innovators regularly encounter resistance from colleagues who are not familiar with new technologies. Hasmaţuchi remembers how some of his colleagues resisted the introduction of lectures on social media and online journalism, because these terms did not have a Romanian translation.

The journalists interviewed agreed that new technologies add a layer of new skills to every journalist – they have to use the computer, the tablet, the mobile phone and have to produce content for these kinds of devices. The ideal reporter today needs to know how to get information, write, film and edit (Dan Marinescu, *Adevărul*), needs to learn some principles of using and operating new technologies, and how to use Google, databases and social media (Cristian Lupşa, *Decât o Revistă*), needs to be digitally educated and have their news immediately ready for mobiles (Augustin Roman, *Digital Antena Group*). Monica Ulmanu, visual journalist for the *Washington Post* in the US, stressed that today's journalists should know how to work with figures and data. She considers that journalists who have knowledge about the computer science domain have better career opportunities. She believes that data visualisation and journalism are not two separate domains, but that they go hand in hand. Hence, a journalist in this field should know how to use vector graphics editors, to draw charts and maps, and know the basics of coding. Ilie Nicola (*Digi24*) emphasised that journalists should acquire these new skills both at university and by learning by doing in the newsrooms.

ANALYSIS OF SELECTED CURRICULA

Digitalization in journalism education

All of the institutions analysed in Romania have embraced digitalization and include it in their courses. In most cases, digitalization is integrated into existing courses, but there have been many new courses in the recent years on digitalization. At the *University of Bucharest* there are several courses on building a website, audio, video, online journalism, online production and multimedia.

At the *Babeş-Bolyai University* in Cluj-Napoca there are new courses about digitalization like digital data analysis, graphic and interface design and communication on mobile devices. The *Lucian Blaga University* in Sibiu offers social media journalism, the *Spiru Haret University* in Bucharest runs courses on online journalism and new technologies.

At the Journalism Department at *Babeş-Bolyai University*, new media theory and online communication are part of the general curriculum, mandatory for both the journalism and digital media Bachelor's programmes. Director Elena Abrudan stressed that educators who teach these topics "have an academic background with relevant professional experience and they also have academic credentials in computer science, interactive multimedia, besides journalism. Moreover, they have professional experience as journalists and researchers in digital media".

Although all faculties run courses on online and multimedia journalism, Silviu Constantin Şerban (*Spiru Haret University*) pointed out a problem: "At times, it is difficult to train journalists [for today's media], since *The Romanian Agency for Quality Assurance in Higher Education* is imposing courses that are not in line with the trends in journalism. We should insist on online aspects, too, regardless of what we are teaching (TV, radio, written press)."

Journalistic practice in journalism education

In all of the journalism programmes analysed there are practical courses integrated into the curricula. Gheorghe Clitan, from *West University of Timișoara*, thinks that students prefer these practical classes, "because they can get more involved in the course and seminar activities. In fact, we do more practical work in order to be closer to what they will be doing as journalists".

At *Alexandru Ioan Cuza University* there are two teaching newsrooms publishing a magazine and acting as a press agency. At *Lucian Blaga University* there is a printed press lab, an online journalism lab and a photojournalism lab.

The journalism programme at the *University of Bucharest* attaches great importance to the interaction with journalism in practice. As the academic staff often have meetings with journalists, some of who are also part of the associated employees, they stay abreast of the needs of the newsrooms.

Journalism students from the Romanian universities analysed also have to gain practical experience outside university in the form of internships, which vary between 90 and 240 hours of practice. At the faculties in smaller towns, one of the major problems is to find newsrooms or media institutions where students can undertake their internships. Gheorghe Clitan (*West University of Timișoara*) complained that newsrooms are understaffed which is why they cannot offer students internships.

Data journalism

As the curricula analysis shows, the *University of Bucharest* and the *Babeș-Bolyai University* have the most extensive course offers concerning data journalism. The institutions offer basic and advanced elements in the field of data gathering. The *Lucian Blaga University* and *West University of Timișoara* do not aim to propose a specialisation in data journalism, they offer only fundamentals as their lecturers think a basic introduction is enough. To date, *Spiru Haret University* does not run a course in data journalism.

Examples of data journalism courses are 'Advanced techniques of data gathering' (*University of Bucharest*), 'Data journalism and Digital Data Analysis' (*Babeș-Bolyai University*), and 'Data gathering techniques' (*West University of Timișoara*).

At the Faculty of Journalism and Communication Studies at the *University of Bucharest*, there are data journalism courses both at Bachelor's and Master's level. The data journalism teacher has a professional background as both a practitioner and an academic. For the Bachelor's students, the course is elective and quite popular among the students. At Master's level, in the

political journalism programme, the course has been compulsory since 2017.

The Journalism and Communication Sciences Department at *Alexandru Ioan Cuza University* also offers a data journalism course. Alexandru Lăzescu said that “due to the latest developments in journalism, we needed to introduce a data journalism course. My colleagues supported the introduction of such a course. I think it is an asset for journalists if they have training also in data journalism, as thus they have more working tools”. At *Lucian Blaga University*, on the other hand, there are no special courses in data journalism, but some elements are integrated into the online journalism course.

Collaborative journalism

In the Romanian media, collaborative journalism is somewhat underdeveloped. Similarly, in the journalism programmes analysed collaborative journalism hardly features. The most widespread form of teaching collaboration is to make groups of students to work together on different projects. Some faculties also use the format of lectures to introduce forms of collaboration in journalism and discuss case studies.

Elena Abrudan (*Babeş-Bolyai University*) explained: “Especially at our campus newspaper, radio and TV station students work collaboratively to produce content for online radio, video-sharing services or online magazines. Students’ feedback is generally positive. They consider the real-world approach in both the mandatory courses and extracurricular activities to be very useful.”

Business models

All the journalism faculties analysed in Romania have integrated elements of media economics. The *University of Bucharest* prepares its journalism students to think about financial constraints, challenges and possibilities. At Master’s level, the *University of Bucharest* also offers a special programme in Media Management. The *Alexandru Ioan Cuza University* offers a basic economic course named ‘Theoretical Introduction to Economics’ in the first semester, while other universities offer students the opportunity to learn about and discuss new business models in the framework of other courses dealing with media economics and current developments.

Ethical challenges

Every institution analysed offers courses in media ethics. All programmes discuss journalistic ethics and the new challenges that have arrived with digitalization during courses that teach media ethics in general. Examples of courses are 'Public communication ethics' (*University of Bucharest*), 'Ethics and professional deontology' (*Babeş-Bolyai University*), and 'Ethics and deontology in journalism' (*Spiru Haret University*).

The journalism programme at *Lucian Blaga University* offers a course in ethics and media criticism, but as lecturer Gabriel Hasmaţuchi stated, they face a major problem because, apparently, in the local media things are different: "Students told us that when they were hired, people in the media advised them to forget all the rubbish that they learned in school, to forget ethics. They have to do what needs to be done. So they are torn apart between what they learned to do in school and what the boss asks them to do, regardless of ethical concerns."

INNOVATION IN JOURNALISM EDUCATION AND THE MEDIA

Journalism education

In general, it seems that journalism education in Romania tries to keep up with innovation and all the changes in the media industry. Alexandru Lăzescu (*Alexandru Ioan Cuza University*) believes that the media industry is a very dynamic field; hence the same course cannot be implemented in the curricula for several years without being adapted in order to keep pace with changing trends.

The journalism teachers from *Lucian Blaga University* have met several times with representatives of the media in recent years in order to discuss current problems. They have observed that there is a big difference between what the university wants and what the media institutions want. Journalism teachers aim to educate journalists who can work in convergent newsrooms, who are professionally trained and apply ethical standards. For the media representatives their outlets' survival is the first concern, and thus they cannot keep up with the theory taught in the faculty because in practice they cannot apply ethics so strictly.

One of the major obstacles to innovative journalism curricula is considered to be the lack of funds. Elena Abrudan (*Babeş-Bolyai University*) argued that due to the practical nature of some of the

courses and the need to adapt to new digital technologies, the journalism and digital media programmes should receive a level of funding similar to programmes such as Business Information, Cybernetics and Computer Science. Currently their level of funding is similar to theoretical programmes in the area of social sciences, but this is not sufficient as they need more technical equipment. However, as the journalism educators interviewed stated, rapid evolutions in the field make all equipment obsolete very quickly.

Gheorghe Clitan (*West University of Timișoara*) also brought attention to the problem of finding appropriate lecturers: “Regarding the teachers, all faculties of journalism in Romania have a problem. We have tried to find people who meet both conditions – to have practiced journalism, but also to have an academic background and even a PhD in the field of communication sciences. It is very difficult to find such professionals.”

Innovation in the media

Media institutions in Romania are very diverse in terms of business models, production practices and size; hence it is difficult to state how innovative the Romanian media are in general. As the journalists interviewed affirmed, innovations have been adopted at different rates in the different media, depending on financial resources, which are in general less than in Western newsrooms.

Journalism professor Elena Abrudan (*Babeș-Bolyai University*) said that there are certainly a growing number of interesting and innovative independent media projects in Romania that have adapted to the new digital landscape. Editor-in-chief Cristian Lupșă (*Decât o Revistă*) agreed that innovation in the Romanian media does not come from the mainstream area, which has more resources, but from the niche, alternative, independent media, which are often not able to support innovations in the long run. On the other hand, Augustin Roman (*Digital Antena Group*) said that journalists using the most innovative techniques in Romania are those employed by the big publishers – because innovations need money. He thinks that television stations have the most rapid adoption of new technologies and that online newsrooms are quickly catching up. Looking from the USA, Monica Ulmanu (*Washington Post*) believes that

technologies are developing very fast and that some are not expensive: “Now, there are a lot of open source programs, which are free. You can just download them and use them.”

The lack of financial resources is, again, seen as the main obstacle to innovation in the media by Alexandru Lăzescu (*Alexandru Ioan Cuza University*). He said that in Romania there is a media sustainability problem. There are some new business models, but they are only applicable for a small number of large publications from abroad, not for the Romanian media. Lăzescu stated that “advertising-based journalism is dying. Moreover, in Romania, we have a small and artificially crowded media market. We do not have serious media structures, they are politicised and thus they are vulnerable. Technologically, they are good, but if we talk about the value of the journalism practiced, this is not so good”. Besides financial constraints, other obstacles to innovation are understaffed newsrooms and a huge amount of stress related to political and economic pressures.

Innovation in the fields of data journalism, collaboration, business models, and journalism ethics

In Romania, examples for data journalism are scarce as these forms of journalism are at a very early stage. The educators interviewed mentioned Emilia Șercan’s (2017) work on plagiarism, the *RISE Project* and the *Romanian Center for Investigative Journalism* as significant examples of data journalism projects. However, the Romanian journalists were of the opinion that data journalism does not really exist in Romania. “What is out there is too mediocre to give as an example”, Cristian Lupșa (*Decât o Revistă*), said. Dan Marinescu (*Adevărul*) said that it is not possible for journalists in Romania to work with data in a newsroom because of the lack of time and resources.

The interviews with the Romanian journalists have shown that there is no consensus about the meaning of the term “collaborative journalism”. Cristian Lupșa (*Decât o Revistă*) defined it as journalism made by several media entities together, in different forms (for example, a subject developed by two newsrooms, on radio and in print). However, he stated that these collaborations are not very common in Romania. Dan Marinescu (*Adevărul*) mentioned two newspaper projects – a blog sec-

tion for contributors from different fields and a collaboration with *Deutsche Welle* for opinions and analyses on international news. Ilie Nicola (*Digi24*) believes that Romanian journalists work mostly individually; in his newsroom they collaborate only with *Deutsche Welle*. For example, they receive video content from the German media outlet and they organise workshops together for digital journalists. For him, collaborative journalism also includes the practice of collaborating with the public, a form of citizen journalism.

Augustin Roman (*Digital Antena Group*) considered the participation of Costin Stucan from *Gazeta Sporturilor* in the *Football Leaks* as an extraordinary example for collaborative journalism. Over several months in 2016, about 60 journalists from 20 newsrooms in Europe were involved in the evaluation of the data and the research. Razvan Ionescu (*Recorder*) said that collaborative journalism has not yet developed in Romania. The reason for this, he believes, is that Romanians in general are not keen on collaborating because of trust issues. Ionescu thinks that journalism schools should place more emphasis on collaborations in journalism.

For most of the journalists interviewed, innovative business models are those which ensure a profit and the survival of a media institution. Dan Marinescu (*Adevărul*) said that shifting the focus to online content has complicated the matter financially. People in Romania generally do not pay for online content, whether it is high quality or not. Augustin Roman (*Digital Antena Group*) said that most of the new innovative business models in Romania have somehow failed to produce the expected outcome for mainstream media. Journalists agree that nowadays ethical issues are more complicated than ten years ago.

Most interviewees identified fake news and political interferences as the main ethical challenges. The trend towards participation in (political) communication on the Internet and on social media has particularly led to the emergence of entities, which misinform and provide fake news. The interviewees agreed that extensive fact checking has become one of the most important tasks for journalists. Other problems they mentioned are the rush for clicks which often produces questionable content, click baiting through false or sensational titles, and the high number of paid and unmarked content

of celebrities and influencers.

Elena Abrudan (*Babeş-Bolyai University*) pointed to the important role which media education already plays in secondary education and mentioned the efforts of the *Center for Independent Journalism* and its partners in providing media and information literacy in schools. She also called attention to the reports on hate speech in the media (both traditional and online) by non-governmental organisations (NGOs), such as *PATRIR* and *ActiveWatch* and private initiatives aimed at the automated detection of untrustworthy news, such as *Zetta Cloud TrustServista*.

HUNGARY

COMPETENCES FOR FUTURE JOURNALISTS

The heads of communication and media departments in Hungary who were interviewed, considered that the core competences for journalists have remained as they have always been. A good social scientific foundation plays an essential role, connected to social responsibility, a critical and ethical attitude, and intellectual skills. Linguistic competences, like composition and writing skills, are essential elements.

The journalism educators also agreed that a journalist must be open-minded and curious, about public life as well as about new technologies. For Péter Szirák (*University of Debrecen*) journalists must be devoted to their profession because they need to be always ready for the next story. He thinks media literacy and self-reflexivity are also important factors. Zsolt Szijártó (*University of Pécs*) considered that it is a plus if journalists have specific knowledge about the topics they report on.

The journalists interviewed agreed with the journalism educators that basic competences have not changed. They largely described similar skills as “evergreens”: the most important ones were curiosity, openness, analytical thinking, self-reflection, good writing, the ability to systematise knowledge, and the willingness to continuously learn. Furthermore, objectivity and the ability to dissociate from the subject were considered indispensable. In addition, they all mentioned how important it is to be dedicated to the profession. The opinions on whether theoretical knowledge or practical skills are more important, were divided: while Attila Bátorfy

(*Átlátszó*) and Gergely Dudás (*Politis*) emphasised the importance of general knowledge (good comprehension skills, public and cultural awareness) and professional competences (press and media history, knowledge of media genres, ethics, basic law and economics, and the EU), Anita Vorák (*Direkt36*) and Attila Babos (*Szabad Pécs*) stressed the importance of practical journalistic skills, like good investigation and interview techniques, and the handling of data.

The heads of departments interviewed were of the opinion that with the rise of new media technologies, “stress shifting” could be observed. Many more skills now have to be perfected because the industry expects journalists to be multi-platform content creators. Zsolt Szijártó (*University of Pécs*), considered that the whole development of technology has been accelerated since the beginning of the 2000s. As a result, new tendencies emerge, such as the visualisation of large amounts of data.

Ákos Kovács (*Pázmány Péter Catholic University*) considered that good journalistic content is still the most important element and that technology is an important addition. András Murai (*Metropolitan University*) takes the view that collecting, systematising and checking information are some of the most important elements of contemporary journalistic work. Bertalan Pusztai (*University of Szeged*), considered that the mediation role of social media has reshaped news consumption.

The journalists interviewed agreed that a significant proportion of new journalistic competences are related to new technologies and their rapid change, such as, the management of databases and visual thinking. Balázs Weyer (chairman of the *Editor-in-Chief’s Forum*), Attila Babos (*Szabad Pécs*) and Anita Vorák (*Direkt36*) believe that the ability to produce cross media materials is essential, that is to say, that the journalist is able to take photos and videos, and is even able to speak on camera. Anita Vorák also emphasised that it is important for a journalist to publish and promote their articles in social media as well. They all thought that mastering the complexity of journalistic skills is much more important to journalists in Hungary than to journalists in Western Europe or the United States, as Hungarian newsrooms work with much lower budgets and fewer journalists.

In addition to the competences related to modern technologies, Balázs Weyer emphasised the

importance of establishing reliable contacts and trust building, as today it is often not a personal but a virtual relationship between the journalist and the interviewee or the source. In addition, along with Attila Babos and Gergely Dudás (*Politis*) he highlighted the importance of global awareness as some issues often cross national borders.

ANALYSIS OF SELECTED CURRICULA

Digitalization in journalism education

Most of the communication and media courses at the institutions analysed have been adapted to the new trends of digitization, and at some universities, special online or multimedia journalism courses have been developed.

At the *University of Szeged*, there is an 'Online journalism' course but only for students who specialise in print and media informatics, while in the electronic press specialisation these skills are integrated into other journalism courses. In media informatics there is a specific 'Radio and TV on the Internet' course. As Bertalan Pusztai explained, they do not want to educate programmers, but advanced users, therefore there are no classical IT courses.

Ákos Kovács (*Pázmány Péter Catholic University*) shares this opinion and stressed that journalists are primarily responsible for content production. In their specialisation in print and electronic media they offer an 'Introduction to print and electronic journalism'. Students can also learn about 'Online media and content service' and 'Multimedia content creation' including digital photography, infographics, podcasts and online videos.

The Budapest Metropolitan University and the University of Pécs also run multimedia courses where students learn how to create and edit still and moving images.

At *Eötvös Loránd University*, as Ferenc Hammer explained, the background of students is very diverse; some of them have very little IT knowledge, while others "have abilities like hackers". Therefore, at the beginning of their studies, students have to do an IT test and those who pass successfully can attend the course 'Creative media practice', while the others are supposed to attend a basic media informatics course. Students can also choose between 'Online research tools' and specific fields like 'Mobile communication' or 'The practice of online video'.

At the *University of Debrecen* there is a course named 'The practice of online communication', which is, according to Péter Mészáros, constantly changing. Courses addressing the Internet are also constantly changing and updating.

Journalistic practice in journalism education

All of the communication and media departments analysed have integrated journalistic practice into their programmes which enables students to publish their journalistic work in different university media. For some universities in the sample, the level of technology such as in radio and television studies is very high. This is particularly the case for the University of Szeged, which inherited the equipment of the *Budapest Media Institution* which closed in 2011; but the heads of departments at the Metropolitan University and *Pázmány Péter Catholic University* are also satisfied with the available technology that allows students to create multimedia content.

All of the institutions analysed offer periodic workshops and events connected to the different fields of media practice. The media and communication students from the *Metropolitan University* can participate in workshops on fake news, data journalism and other topics offered by the *Centre for Independent Journalism*. All of the departments analysed regularly invite practitioners as visiting lecturers.

At *Eötvös Loránd University*, students can choose between many practical seminars that are mostly taught by the department's graduates. One of the most popular ones is titled 'Practices of creative economy', where the lecturers – all acknowledged professionals – give students a task from their field, choose the best of the students' solutions and discuss them during lessons. In the course 'Giving advice to the media industry' the representatives of the media industry report the challenges they face, and students give advice to them.

At *Pázmány Péter Catholic University*, students can participate in a three-day journalistic excursion to the poorer parts of Hungary, during which they produce articles and TV and radio programmes. At Pécs, students can get involved in the *Mérték Media Festival* organised by an NGO of the same name. The festival is a recurrent event mainly concentrating on ethical questions of contemporary journalism.

Two of the departments analysed – at Eötvös Loránd University and Pázmány Péter Catholic University – have integrated an obligatory internship into their curricula, recommended to be undertaken during the last semester. The other four institutions will follow suit because a new decree states that students who started their education in the autumn semester of 2016/2017 or later, have to do an internship in an outside institution. This has to be a minimum of 80 hours and they have to get a minimum of ten credits (HAC 2016).

Data journalism

Data journalism as an independent course is only available at *Budapest Metropolitan University* and *Eötvös Loránd University*, and the same data journalist teaches students in both institutions. These courses concentrate on journalistic skills rather than IT skills. However, there are some elements of this specific field that are also taught in the other programmes, integrated into other courses.

At Debrecen, Péter Szirák and his team have tried to build the use of data visualisation software into the 'Presentation technologies' course. However, the revolutionary professional challenges, such as algorithmic journalism, are not part of the curriculum, because there is not a large enough labour market demand for that, even though processes are moving in this direction. At *Pázmány Péter Catholic University* students have the possibility to learn about infographics which has been integrated into the course 'Multimedia content creation'. At Szeged although there is a demand for a data journalism course, the personnel are not available to teach it. Zsolt Szijártó (*University of Pécs*) is of the opinion that data journalism and other specific fields should become institutionalised at Master's level.

Collaborative journalism

None of the institutions offer collaborative journalism as a specific course. Nonetheless, aspects of student collaboration are integrated into other courses in each of the curricula examined. In addition, there are collaborations between departments of the respective universities, for example, there are collaborations with other disciplines - social sciences, humanities and visual arts.

Some departments put special emphasis on teamwork. At the *Metropolitan University*, the journal-

ism students have to do project work, which means that two or three team members work together for several weeks or months, and their aim is to carry out video reports or other media projects while they reflect on a contemporary problem of public life. Project-based education also plays an important role at *Pázmány Péter Catholic University* where every student has to do a two-semester long project. At the *University of Debrecen* students work in teams not just during courses, but also on projects that are not connected to the actual curriculum, e.g. producing the faculty's image film. At *Eötvös Loránd University* collaboration is also an essential element of the programme, especially in the framework of courses where students produce their own media content (e.g. during the course 'Videographic criticism').

At the *University of Szeged*, the situation is very similar, but the staff hope to teach collaborative journalism as an independent field in the near future. Bertalan Pusztai has recently been to Madrid and observed a huge explosion in this field. His department will soon host a guest lecturer to teach this topic.

Business models

All the Hungarian communication and media departments analysed run lectures on media economics, however new business models are not in their focus. Nevertheless, there are a few courses where some aspects are taught.

The *Budapest Metropolitan University* offers a course on how journalists can build a personal brand. András Murai believes this is very important as nowadays the chance of becoming a full-time journalist has diminished and therefore students have to learn how to move in several directions as freelance journalists.

At *Eötvös Loránd University* there is a general PR communication course with different lecturers from the different fields of the media industry, where personal branding is also covered. As the analysis shows, at *Pázmány Péter Catholic University*, and also at the universities at Debrecen, Pécs and Szeged, marketing knowledge is mainly taught in PR courses. *Eötvös Loránd University* offers a 'Youtube stars – online celebrities' course where students learn about the social media stars' business models.

Ethical challenges

In every institution analysed, there have been general media law and media ethics courses integrated into the curricula for a long time, and most of them have been converted to the new challenges related to digitization.

Zsolt Szijártó (*University of Pécs*) noted that with the penetration of social media a large number of questions arise that one has never thought of before. 'The ethical and legal questions of the regulation of communication' are taught together in one course, and there is an independent course for 'Media regulation'. The department often organises workshops and there is a media festival related to these topics. Similarly, at the *University of Debrecen* and at *Pázmány Péter Catholic University* media law and media ethics are taught together. Ákos Kovács (*Pázmány Péter Catholic University*) considers that for a catholic university it is essential to take responsibility for someone's actions, and this is also the case in the media field.

At the *University of Szeged* and at *Eötvös Loránd University* students can attend not only courses on media law and media ethics but also specific courses for journalists. Students at Szeged who have chosen the specialisation in print have to do the course 'Legal background of journalism, legal and ethics question in practice'. At *Eötvös Loránd University* the changes in Internet content related to judgement practice are an emphasised topic during the course 'Communication case studies: the freedom of expression in the light of judicial practice'. Another interesting initiative is a seminar on press freedom, where students analyse the situation of the media in Hungary.

INNOVATION IN JOURNALISM EDUCATION AND THE MEDIA

Innovation in journalism education

The Hungarian communication and media departments have adapted themselves to the fields of innovation and to the new needs of the media industry in various forms and degrees.

András Murai (*Metropolitan University Budapest*) considers that the owners of this private university encourage the educators to innovate and to connect with practitioners. They redesigned their curriculum about five years ago to integrate more practice-oriented courses from the first

semester. The *Metropolitan University* also supports students to compile a portfolio displaying their best works as a 'virtual dossier'.

Péter Szirák (*University of Debrecen*) states that it is important to continuously examine the journalistic skills that are demanded from journalism graduates by the market, so that the teaching can be adjusted to what is really needed. He and his colleague Péter Mészáros emphasise that their department is ahead of the local media market, as, for instance, they experiment with new media formats in their seminars and their students then present them to the medium they work for.

Ferenc Hammer (*Eötvös Loránd University*), in contrast, is of the opinion that their department will never be very up-to-date, because neither the Hungarian media industry nor its creative economy can keep pace with other parts of the world. However, he stressed that journalism educators should teach students to be open-minded enough to adapt to new things. He and his colleagues also believe that knowledge of the English language is necessary to pursue a career in journalism; therefore, the students at their department have to do part of their studies in English.

The technical equipment, including hard- and software, is very diverse among the Hungarian communication and media departments. The universities of Debrecen, Pécs and Szeged, as well as *Eötvös Loránd University* and the *Pázmány Péter Catholic University*, have a New Media Culture Creative Lab at their disposal, sponsored by the *National Media and Infocommunications Authority (NMHH)*. However, as Ákos Kovács (*Pázmány Péter Catholic University*) stressed, great technical tools are not a guarantee that good programmes will be created with them. Moreover, these labs do not have all of the equipment the departments need, such as laptops and cameras, and access to them is difficult at times. At Debrecen, for example, the *NMHH* media lab does not belong to the Communication and Media Department, a unique situation originating from the organisational structure of the university, which makes teaching difficult. The same is true for a media studio at the university, that was set up with support of the department, but is not theirs either.

Some institutions struggle somewhat with the speed of technical developments and outdated equipment, as well as with the need to constantly maintain the equipment. Zsolt Szijártó (*University of Pécs*) suggested involving media companies to help to solve this problem; they could provide their technical equipment on a loan basis to the students. In his view, the broad

media education landscape in Hungary cannot keep pace with technological innovations. However, there are some institutions, which are in better positions because of their better financial positions, and better connections. Szijártó also emphasised that media companies should pay attention to what is happening in media and journalism education, because then they would know better what to expect from the graduates.

One of the biggest problems is the lack of financial and human resources in the departments. The journalism educators interviewed from *Eötvös Loránd University*, *University of Pécs* and *University of Debrecen*, stated that there is not enough money for technical equipment; furthermore, Ferenc Hammer (*Eötvös Loránd University*) said that lecturers' salaries are relatively low. In this context, it is seen as a big problem that the Hungarian higher education institutions typically do not offer special programmes in journalism; elements are incorporated into media and communication programmes that do not receive enough state funding to offer adequate practical and up-to-date journalism education.

Most of the interview partners agreed that the current – primarily political – circumstances do not help journalism education in Hungary, and in most of the cases, graduates have to pick a political side when choosing a media company as their employer.

Innovation in the media

The Hungarian journalists interviewed consider the national situation regarding innovation in the media rather pessimistically. They said that in Hungary neither the relationship between politics and the media nor the position of journalism education is conducive to innovativeness. They believe that openness towards innovation is mostly found in small, independent newsrooms and largely depends on the personality of single journalists. Most journalists from independent newsrooms are also members of international journalism organisations (e.g. *International Consortium of Investigative Journalists – ICIJ*, *Organized Crime and Corruption Reporting Project – OCCRP*, *Global Investigative Journalism Network – GIJN*) which help not only their journalistic research but also foster innovative thinking. These journalists are open to new ideas: they often participate in international workshops and try to keep up with the latest publications on developments in journalism.

The journalists agreed that one of the biggest obstacles to innovation in the media is the lack of real journalism education in Hungary. Neither the communications and media departments of the universities nor the profit-oriented market journalism schools provide the professional knowledge and practical expertise to the students, which would provide the readiness for journalistic work and openness to innovation.

Furthermore, most of the Hungarian newsrooms lack resources: they work with very low budgets and very few people, so most of their work is about daily news production and there is almost no time or energy to deepen a subject, or for self-development and innovation. Péter Szirák (*University of Debrecen*) also stressed that there is no capacity for continuous learning in the newsrooms which would be important for the working journalists to stay up-to-date.

Innovation in the fields of data journalism, collaboration, business models, and journalism ethics

The journalists interviewed agreed that data journalism and visualisation are important fields in journalism as they provide much more information and facts about a topic – and that Hungarian newsrooms are lagging behind in this area. Anita Vorák said that only some independent online media regularly use data visualisation, like *444*, *Index*, and *Direkt36*, where she works. In general, newspapers do not undertake data journalism. Attila Babos (*Szabad Pécs*) stressed that, especially in the rural press, the lack of time and resources do not allow journalists to practice data journalism in a professional manner. Zsolt Szijártó (*University of Pécs*) was of the opinion that the limited access to data hinders journalists to do data journalism.

Attila Bátorfy (*Átlátszó*) considers that the few journalists who practice data journalism in Hungary have a major disadvantage in comparison to their colleagues from Western Europe: they need to be able to do all the work on their own, including programming, data extraction, analysis, interpretation and systematisation as well as data visualisation. Large newspapers in Western Europe, for example *The Guardian*, have been able to set up data journalism units, which split the work.

Every journalist gave the same examples of good data journalism in Hungary: the *Direkt36*'s contribution to the *Panama Papers* and *Paradise Papers* investigations, and the *Index*'s series of articles

about the empire of the oligarch Lőrinc Mészáros and his business partners.

Every journalist felt that collaborative journalism is becoming very important in a globalized world with investigations being increasingly complex and even crossing national borders. Furthermore, in Hungary, the sources and possibilities of the media are narrowed as more and more media are in the hands of entrepreneurs close to the government and the number of independent critical organs is decreasing. In these times, collaborations become increasingly important. Independent editors in Hungary mostly like to participate in collaborations: many of them are members of international journalism organisations and keep in touch with each other.

Anita Vorák (*Direkt36*) talked about the obstacles to international cooperation: she found it difficult to find a foreign colleague who was equally interested in a subject, such as, for example, an investigation into Lőrinc Mészáros's Croatian interests. Attila Bátorfy (*Átlászó*) and Gergely Dudás (*Politis*) pointed out that there is no great tradition of cooperation in the Hungarian media, as everyone in Hungary is keen to protect their own territory, so today international collaborations are often more successful than Hungarian collaborations.

Nevertheless, encouraging examples can be found: the investigative journalism centre *Direkt36* is very active; it has participated in *Swiss Leaks*, *LuxLeaks*, the *Panama Papers* and the *Paradise Papers*, and is a member of international organisations that manage collaborative projects (e.g. *ICIJ*, *OCCRP*, *GIJN*). András Pethő from *Direkt36* is one of the most important players in collaborative journalism in Hungary.

As good examples, the journalist Attila Bátorfy mentioned the investigative report on the company empires of Lőrinc Mészáros by the independent online portal *444* and the independent weekly magazine *Magyar Narancs*; and the co-operation of *Kreatív*, a monthly magazine for the creative, advertising and marketing profession, with *Átlászó*, Hungary's first investigative journalism non-profit online newspaper. There was also a good collaboration when, during the 2010 elections, the editors of *Index*, *Kreatív*, the business magazine *Figyelő* and the online portal *Origo* shared the work among themselves and analysed the campaign costs of the main political parties in Hungary: each newsroom was commissioned to investigate the campaign costs of one party. However, these are occasional examples and not frequent practice.

Gergely Dudás mentioned Szabolcs Panyi⁷ from *Index* as a good example, who is a member of *VSquare*, a network of independent media outlets carrying out cross-border investigations in the Visegrad region (Poland, Hungary, the Czech Republic and Slovakia).

Small innovative newsrooms are trying to find a business model that ensures their political and economic independence. This is important because in Hungary both the government and the business players take it for granted that they can influence the content of a newspaper in exchange for their financial support. All of the Hungarian journalists interviewed saw that the financing of newspapers is very difficult, that budgets are low, and they can only hire a few journalists, so the energy is often scattered.

Moreover, Hungarian traditions and current conditions do not favour the crowdfunding model: there is low purchasing power, and whoever has the money to subscribe, is often reluctant to pay for journalistic content as Hungarians are not used to paying for digital content and services. All the journalists agreed that crowdfunding cannot be considered to be a real innovation, but rather as a return to the “roots”, to the initial traditions of the press when the readers maintained newspapers by their subscriptions.

Direkt36 has a single source of income, a three-level donation system consisting of a micro-donation (below 50,000 HUF per year), individual support (above 50,000 HUF) and institutional support. In addition, almost every article of *Direkt36* is published for a fee in other media (*444*, *RTL*, *Forbes*), so they actually contribute to the production of the content. Balázs Weyer (*Editor-in-Chief's Forum*) believes that the advantages of this model are full independence and a much stronger, more direct relationship with the audience. The disadvantage is that it produces a much smaller revenue stream and requires more effort from the journalists, since the organisation of the crowdfunding campaigns is also part of their job. Anita Vorák would prefer to have full crowdfunding, because then *Direkt36* would not be dependent on tenders or institutional support.

The NGO *Átlátszó* played a pioneering role in crowdfunding. Attila Bátorfy attaches great importance to that form of financing as it needs less institutional support which may limit the independence of the media outlet. Now approximately 60% of *Átlátszó's* budget comes from crowdfunding, which

7 https://index.hu/szerzo/panyi_szabolcs

Bátorfy considers a very good ratio.

Gergely Dudás is currently working on the launch of *Politis.hu*. The online portal focusing on issues of the public life will only be available to subscribers. He said that his model, aiming to offer high quality journalism which is sustainably funded, could be a model for other newspapers. Many Hungarians still find it hard to accept the need to pay for news services online. To Dudás it is important that the donors (subscribers) are neither investors, nor owners, but buyers of a service. Gergely Dudás stressed the fact that *Politis'* model will not allow native advertising, which according to him is one of the most negative phenomena in the Hungarian press.

With *Szabad Pécs* Attila Babos tried to establish a community funded medium, but he does not consider it to be a seriously designed business model. Moreover, it has now become apparent that the financing of a rural newspaper is very difficult because of the tough economic conditions and the small Hungarian readership who are reluctant to pay. As a result, today, Babos is the last remaining full-time journalist on the portal when previously there were four full-time journalists.

All journalists in the sample consider ethics as a very uncertain area in Hungarian journalism. Although there are uniform rules and laws, and most independent newsrooms have their own code of ethics, there are many loopholes and uncontrolled areas. The following issues were named as the most difficult in Hungarian journalism: copying content from other media, the lack of independent sources, the publication of unmarked adverts and less and less fact checking. Obviously, also the fact that issues of media laws and ethics have been neglected in journalism education adds to the problem.

Gergely Dudás considered that it is also a big problem that the boundary between news and opinion has been completely blurred, even in quality media like the liberal magazine *HVG*, *Index*, and *444*. The situation is only exacerbated by the fact that sometimes the title of an article creates a misleading context. This is particularly noticeable in texts published in social networks.

Attila Bátorfy stated that the establishment of a complete, comprehensive ethical code is rather the exception at Hungarian newspapers. As the Hungarian media market is small, news competition often overwrites all other aspects. Bátorfy thinks that one of the biggest problems is ethical mis-

conduct in collaborations and embargoed news as every medium wants to be the first publishing the news. He also mentioned the proximity between media houses and politicians as a problem. In his view, another dilemma is that newspapers publish corrections in an only barely noticeable form. Gergely Dudás also found it problematic that journalists in Hungary do not accept the work of accountability mechanisms, like press councils, and consider it a waste of time to deal with complaints about unethical practices. Therefore, enforcing ethical norms in everyday life often lags behind or goes awry. Time shortages and lack of staff are the cause of many professional mistakes.

Furthermore, Internet journalism and the community media have raised many new issues in the field of ethics, but the journalists interviewed here felt that these issues are almost completely unclear and still awaiting discussion. Anita Vorák emphasised that how to handle anonymous sources is a very important ethical issue, because today Hungarians only tend to release information to journalists anonymously.

GERMANY

COMPETENCES FOR FUTURE JOURNALISTS

Obviously, the Internet and new technologies have been changing the profession of journalism. However, all the German journalists and journalism educators interviewed agreed that the core skills and competences have remained the same, while new ones related to technology and multimedia have been added.

Research and presentation skills remain particularly important. Journalists need to be able to convey knowledge and to present complex audience-oriented issues in the different media genres. It is essential that journalists know how to obtain information and know their information rights. In doing so, a critical thinking competence is crucial as well as knowledge about media ethics. Furthermore, the respondents listed that journalists should have an understanding about media law, media economics and media history. The interviewees agreed that curiosity, the eagerness to find out new things and openness towards different opinions are also as important as ever.

As journalism has experienced considerable changes linked to technological transformations, requirements for technological knowledge for journalists have grown. What new skills a single journal-

ist should command varies a lot and very much depends on their specialisation – be it new channels, like social media or new methods, such as data journalism.

Most of the respondents agreed that the ability to code has become more and more important for journalists. “I really recommend engaging with data, as there will be more and more data – and also more data publicly available as the pressure for transparency will increase”, journalist Bastian Obermayer (SZ) argued. Publisher David Schraven (*Correctiv*) believes that in the long run, media companies will have no choice but to include data journalism in order to produce high quality journalistic content. Nevertheless, most interviewees also stated that not every journalist needs to be an expert in data journalism.

For the average journalist, it is sufficient to have some knowledge of statistics and accept databases as one of a number of sources. Every journalist should know what is possible with data, which tools and different forms of visualisation are available, and be able to communicate and cooperate with data journalists and programmers. “Data journalism is one of these building blocks, a specialisation option that one can choose. I do not think that every journalist must be able to work as a data journalist, it is too specialised. But it helps us if our colleagues who are not data journalists, show understanding for data and data journalism”, Ulrike Köppen (*BR Data*) said.

The journalism educator Holger Wormer (*Technical University of Dortmund*) emphasised “I do not have to be able to program it myself or analyse it. However, I have to have a sensitivity for it, and that is quite an original journalistic skill: Where does the record come from? Is the record clean or is there a bias in it? I should be able to realise ‘Oh, something looks weird, there are statistical outliers.’ And I have to have an idea what I could do with it”. All journalists should know which tools are available and who to ask for support. They should also know how to simplify their research, for example, by using text-mining programmes.

The journalists and journalism educators interviewed agreed that, particularly with the rise of multimedia production and data journalism, the importance of interdisciplinary approaches and teamwork have become much greater. The *BR Data* team, for example, is highly interdisciplinary, consisting of journalists, information scientists and designers. “There is no trained data journalist in the team, it becomes a data journalism team through its mix of abilities – and

through learning by doing”, team leader Ulrike Köppen emphasised. Köppen and her colleague Marie-Louise Timcke (*Berliner Morgenpost*) both stressed the relevance of team play by stating that team members who have a journalistic focus need to have insight into the coders’ and designers’ work and vice versa.

Team spirit is also a core competence for collaborative journalism. “You can’t work with somebody who is egotistical and only looks after their own interests because then the whole collaboration would fall apart”, Bastian Obermayer (*SZ*) emphasised.

Some of the interviewees also considered business skills as vital for today’s journalists. Marlis Prinzing (*Macromedia University*) believes journalists should have competences that allow them to develop new products for new platforms, new concepts for new target groups, and new organisational structures in the newsrooms. Although entrepreneurial thinking becomes increasingly important for journalists, some interviewees cautioned that marketing and journalism should stay separated from each other so that journalistic freedom is not obstructed by shareholders’ interests.

Openness towards new technological developments and knowledge about current trends in the media were rated as essential for journalists by all of the German interviewees. This implies the importance of life-long learning which most interviewees agreed with and named workshops and courses offered by academies, as well as video and web tutorials, as effective and efficient ways to round off skills and to learn new programmes. Journalist Jens Radü (*Der Spiegel*), who teaches multimedia journalism at universities and journalism schools, sees it as “an opportunity and a duty at the same time to catch up on the latest developments and to teach and discuss those”. He is convinced that “there will be even more change and that for future generations of journalists there is no getting around digital journalism”.

ANALYSIS OF SELECTED CURRICULA

Digitalization in journalism education

All institutions embrace the trend of digitalization and include it in their courses. Teaching students to understand the technological developments of the past decade and use these in the future, was rated as rather important by all interviewees. Marlis Prinzing (*Macromedia Univer-*

sity) described the approach to digital innovation as follows: “It is integrated in almost every course – and in my opinion this is the only way to go because digital technology has caused a change, a transformation which goes through the whole society. Hence, it would be absurd to represent that change only in one or two courses. That would be a total reduction.”

The journalism programmes under study often integrate the issue of digitalization into already existing courses, like introduction lectures or teaching newsrooms. In addition, all focus on single aspects of digitalization within the framework of special courses. Here, one needs to differentiate between conveying knowledge by lectures, discussions, examination, and case studies, and the implementation of this knowledge. The majority of the sample offers courses that aim to provide basic knowledge on digital journalism. These come under a wide panoply of names, such as cross media, multimedia, online journalism, convergence, mobile content and Web 2.0. Issues of digitalization include, for example, working for digital media, data journalism, working cross media, using content management systems (CMS), multimedia storytelling and other digital forms of presentation, digital photojournalism, and video journalism.

Most courses and modules focus on the implementation of the acquired knowledge about the digitalization of the media. Implementation can mean that students have to write for digital formats and use new working techniques and tools, create and produce digital journalistic content in the framework of a project, plan and design new formats, or develop digital strategies. This is achieved by integrating digital working tools into the teaching newsrooms or by offering opportunities to work on semester-long journalistic projects. Many interviewees underlined that it is less important to learn how to use specific tools and programmes than to gain a basic understanding of the array of different tools. It is essential to have a broad insight as the tools and programmes used in different newsrooms vary widely, and sometimes are even specifically developed for certain newsrooms or projects.

Journalistic practice in journalism education

All of the institutions analysed put a strong emphasis on practice in their curricula; most even ask for journalistic experience as a requirement to enrol in the programme. All institutions re-

quire their students to do at least one internship during their studies, the required duration of these internships ranges from six to twenty weeks. Only Dortmund includes a one-year traineeship in its curriculum. Usually, students have to find journalistic work opportunities outside university on their own. In some programmes a reflection of the practical experiences gained in internships is included in the curricula.

In addition, all of the institutions offer opportunities to produce (and partly publish) journalistic content during courses, projects and in teaching newsrooms. In the framework of these mandatory courses, students learn how to work for magazines, for radio or TV, for online or print media, as well as to make use of convergent forms. Teaching includes the technical knowledge of soft- and hardware, the practical planning and execution of various journalistic projects as well as special skills like microphone and camera training.

Therefore, most institutions attach special value to the fact that many of their staff have a professional background as journalists. In addition, guest lecturers from the journalistic field are frequently invited either to teach in the framework of practical courses or to give insight during lectures and discussion rounds. By inviting practitioners, the institutions can offer courses even in fields where their own staff have no specialist knowledge, such as data journalism or research in the dark web.

Data journalism

All six German journalism programmes under study here offer courses on data journalism. However, the range of intensity and the amount of acquired knowledge and practice is very varied. While the B.A. in science journalism at the TU Dortmund University⁸ offers data journalism as a second subject, and therefore dedicates about one-half of the study time to dealing with data, the other faculties offer modules or workshops or integrate aspects of data journalism into other courses.

Teaching data journalism generally means understanding the phenomenon of datafication and its influences on journalism. This includes: the basics of statistics (to rate and clean up data), ways of gathering data, the use of different tools like data bases and software, basic coding

⁸ Besides data journalism, science journalism students can choose natural sciences or technical journalism as a second subject. The faculty of Journalism at the TU Dortmund University also offers B.A. programmes in general journalism and music journalism.

skills (mostly with R), storytelling based on statistics, the use of visualisation tools, and the implementation of the acquired knowledge in the framework of data journalism projects. Some departments teach statistics as an introduction to academic work and research in communication science, students then have to transfer this knowledge themselves to data journalism. However, even students of the B.A. data journalism programme at Dortmund need to further develop their skills alongside their studies to become deeply familiar with working routines and tools. Against this background, Marie-Louise Timcke together with other students founded the initiative *Journocode* aiming at sharing knowledge about different tools for data journalists among themselves and with a wider audience.

All of the journalism educators interviewed agreed that their institutions should provide a basic introduction to data journalism. Holger Wormer (*Technical University of Dortmund*) regards data journalistic skills as almost as essential as other journalistic skills: “A journalism education that does not convey the basics of data journalism is in my opinion not up-to-date anymore.” However, he admitted that at his institution only a small number of science journalism students have chosen data journalism as a second subject so far.

While the departments at Hamburg, Dortmund and Cologne are eager to enhance their data journalism offer in the future, Tanjev Schultz (*University of Mainz*) and Klaus Meier (*Catholic University of Eichstätt-Ingolstadt*) cautioned that only a limited number of data journalists will be able to make a living from this specialisation. Wormer, on the other hand, argued that the size of the job market for data journalism graduates depends on how broadly data journalism is defined. If data journalism is just seen as revealing data leaks, such as the *Panama Papers*, or as creating data graphics, it will stay a niche area. If, however, the analysis of data and user behaviour are also seen as data journalism, the job market automatically becomes much bigger.

Collaborative journalism

All institutions have integrated aspects of journalistic collaboration into their curricula. The most widespread form is to prepare students to work in teams while doing journalistic research and producing content. This happens in the framework of teaching newsrooms as well as during

courses that end with a small journalistic project. Klaus Meier (*Catholic University Eichstätt-Ingolstadt*) underlined, and most of his colleagues agreed, that “journalists are no longer individual workers – lonely riders – they need to be able to work in teams. There are quite a lot of courses and workshops where we force students to work in teams. And once you are able to work in teams, you will be able to work in international teams afterwards”.

Stuttgart, Cologne and Eichstätt specifically aim at enabling their students to work in international, intercultural contexts and include one semester abroad in their curricula. Dortmund requires students to do their internship abroad. At Stuttgart students who cannot afford to study abroad do their 6th semester together with foreign students and in English. In addition, Dortmund enables its students to collaborate in international teams in the framework of single projects or summer schools or with students from other faculties. In the Bachelor’s programmes at Dortmund and Eichstätt, all students have to study a separate minor and by this learn how to work with students from other disciplines.

Some departments use the format of lectures to discuss forms of collaboration in journalism – through case studies students learn how collaborative journalistic projects have emerged, how they were organised and what difficulties might arise.

Only Stuttgart offers a module on crowdsourcing to teach students how to collaborate with the audience.

Business models

Five of the six programmes being studied include questions about financing journalism in the future in their curricula and offer students the opportunity to learn about and discuss new business models. Most involve media professionals as guest lecturers. Only Hamburg does not offer courses on this topic; the head of department, Michael Brüggemann, justifies this approach by saying: “We believe that the difference between newsrooms and publishing companies is reasonable as it provides for journalistic professionalism: journalists should not have to worry about how to finance journalism. Developing business models should be in the hands of media managers.”

Most faculties in this sample discuss economic questions in the framework of rather general courses

like 'Introduction to journalism', 'Media economics' or 'Current developments in journalism', while some put a slightly stronger focus on the topic. The programmes at Cologne, Dortmund and Stuttgart offer special courses on business models, but only the programme at Stuttgart has a strong focus on innovations⁹. In cooperation with the media management programme, journalism students at Cologne can attend different courses on business planning and management and they have to develop their own business plan as part of the study requirements. At Dortmund, students can discuss and experience the economic consequences of digitalization as part of special courses such as 'editorial analytics' or 'consequences of algorithms'. At Stuttgart, students are required to attend the module 'Innovation management' and develop business prototypes for specific cases from the field. Here, media practitioners rate the student's ideas and at times even implement them in their respective media outlets.

Ethical challenges

Most of the time, questions about ethical challenges are embedded in other parts of the curricula. As the journalism educators reported, discussions around journalistic ethics frequently arise during news production in workshops and teaching newsrooms.

Apart from Stuttgart, all other departments discuss journalistic ethics and challenges that have arisen with digitalization during courses that focus on media ethics in general or on single aspects. Current issues discussed in the framework of courses and lectures are the effects of digitalization on journalistic production, as for example, the responsible use of material from social networks during acts of terror or shootings, or tools for fake checking. Other courses revolve around issues such as how to cover conflict or right-wing movements.

Marlis Prinzing (*Macromedia University*) and Klaus Meier (*Catholic University Eichstätt-Ingolstadt*) underlined the need to expand their students' knowledge concerning journalistic ethics; while at *Macromedia University* the course 'media and business ethics' is already compulsory, at Eichstätt the ethics course will be mandatory in the near future. Prinzing emphasised that while ethics is a key competence in journalism, it must be reflected everywhere, especially in the media professions, hence also in PR, advertising and media management.

⁹ The Catholic University of Eichstätt-Ingolstadt offers a Master's degree programme in journalism with a focus on innovation and management, the Technical University of Dortmund offers a Master's degree in journalism with a focus on quality management, and Stuttgart Media University offers a Master's degree in media management with a focus on innovation management and entrepreneurship - which have not been part of our analysis.

INNOVATION IN JOURNALISM EDUCATION AND THE MEDIA

Journalism education

As the study programmes analysed differ in their foci, they also differ in their approach to implementing innovations in their courses. The study programme 'cross media newsroom' at *Stuttgart Media University* has an inherently closer connection to online journalism and new media than, for example, the journalism programme at the *Catholic University Eichstätt-Ingolstadt*, which creates a basis in all four media genres (print, radio, TV and online), or the research-oriented Master's in "Journalism and Communication Studies" at *the University of Hamburg*. However, the latter is "in a constant process of adapting to the process of digitalisation", head of department Brüggemann said. Yet, he does not believe that he and his colleagues are too late getting on board the moving train of innovations in journalism as he feels "we are not behind the media industry, but rather, we face the same unresolved challenges at the same time".

Regardless of the programmes' focus, all of the journalism professors interviewed agreed that journalism education should not try to include and embrace every new trend but should teach core competences and only those trends that are significant. The role of journalism educators should be that of a critic who observes trends from a distance and only implement them in their teaching if relevant.

Even though young journalists-to-be have the image of being very tech-savvy and open to innovations and experiments, in the study programmes analysed the teaching staff were often the driving force of innovation, not the students. Some students are sceptical about new techniques and technologies, for example, programming languages and data journalism. Meanwhile, others are very interested in data journalism courses.

The departments under study face several obstacles when aiming to expand their curricula in order to include current trends like data journalism: time, space, money and staff. Most curricula are already tightly packed, and it is difficult to integrate further courses without overburdening the students or dropping other important content. Some faculties also face space limitations. Restrictions on financial resources become important not only when purchasing new equipment, but also when maintaining existing hard- and software.

As most academic staff lack knowledge and experience in data journalism, most of the programmes analysed offering data journalism rely on guest lecturers. While some departments have hired experienced data journalists to give practical courses on data journalism and infographics, other departments, however, rather shy away from this option because such specialists are very expensive. With regard to courses on statistics, statistical visualisation and the programming language R, the journalism programme at the *Technical University of Dortmund* cooperates with colleagues from the statistics department.

Innovation in the media

The German journalists and journalism educators were ambivalent when asked how open German media companies are towards innovations. However, there was agreement that adopting a one-size fits all approach is inappropriate in this case, as there is a different openness towards innovations and a different implementation speed in German newsrooms. “Most German media overslept the trend of digitalization and reacted too late”, said journalism professor Tanjev Schultz (*University of Mainz*), “but most now really make an effort.” Most interviewees agreed that the German media have developed a willingness to experiment and do not have as many reservations towards digital technology as they had some years ago.

Yet, the interviewees said that when compared to other countries, especially to the US, Germany is lagging behind. Journalism professor Meier (*Catholic University Eichstätt-Ingolstadt*) on the other hand pointed out, though, that one should not forget that there are very successful innovators in the media industry in Germany; one example was the Samsung app *Upday* which was developed by the Berlin based publishing house *Springer*.

Journalism professor Rinsdorf (*Stuttgart Media University*) emphasised that openness towards innovation is highly dependent on the personalities of the individual journalists, and reports that media outlets often hire graduates from the programme especially because of their orientation towards innovation. Journalist Schraven (*Correctiv*) recounted that while he was working as head of investigations at *Funke Mediengruppe*, he implemented many new technologies in the newsroom, and his employer never obstructed his actions but said ‘go for it’. In his opinion

a personal interest in how new technologies work and what can be done with them is of great importance.

Young journalists seem to play a big role as innovation drivers. The multimedia journalist Radü (*Der Spiegel*) stated that the role of young journalists in German newsrooms has changed over recent years. Their older colleagues in the newsrooms no longer see them as greenhorns, but rather anticipate new ideas and approaches from them. Journalism professor Meier stressed that one should not expect too much. In his opinion young journalists “can provide innovative impulses”, but “the readiness for innovations must come from the management and the newsroom of the media company”. Journalist Timcke (*Berliner Morgenpost*) underlined the importance of openness and trust by the administration of a media outlet to allow journalists to experiment with new forms of investigation and presentation. As our interviewees stated, obstacles to innovation are to be found both at the individual and the organisational level: when new technologies necessitate that journalists change their routines, they are often resistant. Also, hierarchical structures and financial constraints hinder change and the implementation of innovations. Journalism educator Meier stressed that newsrooms in other countries do not always show a huge willingness to innovate either, and cited the results of the report “Journalism, Media and Technology Trends and Predictions” (Newman 2018) from the *Reuters Institute for the Study of Journalism* at the *University of Oxford*, which shows that publishers from many countries worldwide see internal resistance to change and the inability to innovate as big challenges.

Innovation in the fields of data journalism, collaboration, business models, and journalism ethics

The German journalists and journalism educators interviewed agreed that there are many interesting data journalism projects in Germany, and that journalism can be very proud of itself. Generally, two foci have been evolving: interactive and visual data journalism on the one side, practised, for example, by *Berliner Morgenpost*, and investigative data journalism on the other side, practised, for example, by *Süddeutsche Zeitung*, *BR Data* and *Correctiv*. Investigative

data journalism can either involve the analysis of big data¹⁰ or documents¹¹.

The interviews with the German journalists show that collaborative journalism and data journalism are deeply intertwined in practice - particularly when there are massive amounts of data involved, like in the *Panama Papers* investigation, there is a need to have a big team and to collaborate. "The more complex the topics become as in the context of data security, the more important it is that you admit that you do not know everything and work closely with people who have more knowledge," Timcke underlined, "Collaboration is incredibly important".

Some interviewees were reluctant to use the term "collaborative journalism" and prefer to use the term "cooperation". They emphasised the importance of cooperation and that it should be regarded as "normal" work. "Media and journalists who do not cooperate with others will not survive", journalist Schraven stated. In addition, he understands collaboration with the audience as a form of "collaborative journalism", which is also known as participatory journalism¹². Other interviewees were more cautious about involving audience members in investigations with regard to reliability.

Our results show that there is not only one form of collaborative journalism, but different methods and approaches. Some stories are not only investigated jointly¹³ but also written jointly by the collaborating teams¹⁴; for other projects databases are shared with the partners¹⁵; and for other ventures just the investigation results are shared with the partners¹⁶.

10 E.g. the investigation on how rising sea levels are changing the world by the investigative research network *Correctiv* - together with journalists from seven countries, *Correctiv* analysed more than 700,000 tidal heights worldwide showing that climate change has long been a reality for the coastlines of the world, <https://correctiv.org/en/investigations/climate/article/2017/07/28/sea-rise-overview-world/>. Another example is the data scraping project "Hanna and Ismail" by *Bayerischer Rundfunk* and *Spiegel.de* - journalists from both newsrooms investigated the rumour that people with foreign-sounding names have poorer chances on the German rental market. They created about 15 'personas' with different names and sent 20,000 inquiries to apartments for rent in the biggest German cities. All 'personas' spoke perfect German, all had a similar professional backgrounds (marketing), and were around 28 years old. After collecting all the answers in a database, they found that there was indeed clear discrimination, especially against men with Arabic or Turkish-sounding surnames. <https://www.hanna-und-ismail.de/>

11 For example, the *Panama Papers* or the *Paradise Papers*.

12 As an example, Schraven mentions the project "Unterrichtsausfall" ("cancellation of classes") for which *Correctiv* gathered data from teachers, pupils and teachers about cancelled classes in schools in the city of Dortmund. With this data *Correctiv* was able to show how many teachers were absent and that the Ministry of Education was giving incorrect numbers to the public.

13 e.g. in the research cooperation of *Süddeutsche Zeitung* and the regional public broadcasters *NDR* and *WDR* <https://www.ndr.de/der-ndr/daten-und-fakten/Recherchekooperation-NDR-WDR-und-Sueddeutsche-Zeitung,kooperationen100.html>

14 e.g. the story "Hanna and Ismail" on discrimination in the German rental market from *BR* and *Spiegel.de*

15 for the project "Money Island" (<http://web.br.de/madeira/>) the *BR* team created a fully searchable database of all JORAM documents and made it available to journalists from *ORF* (Austria), *Le Monde* (France), and *La Vanguardia* (Spain). In *JORAM*, the official Madeira gazette, entries for hundreds of companies in the Madeira low tax regime can be found.

16 e.g. the project "Schnee von morgen" ("snow from tomorrow") a cooperation from *BR* with regional publishers (<https://schnee-von-morgen.br.de/#stage-1>). The project investigated decreasing snow heights in the German mountains, the media partners got permission to use the investigation results from the *BR* team and published their own story with their regional twist

The interviewees thought that the biggest advantage of collaborative projects is that the attention journalists get for their story is multiplied by publishing in several media. This attention span becomes even higher when it is an international collaboration and the stories are published, often simultaneously, in several countries. Furthermore, when several newsrooms collaborate, there are more experts for specific topics available, and the more people that work on a leak, the more stories that can be revealed.

Big international collaborations also provide safety for the individual journalists: “The mere fact that around 400 colleagues had access to the data made us sleep more peacefully. It made less sense to eliminate one of us, knowing that the other 399 journalists will be really angry and finish the story up anyway”, Obermayer who led the *Panama Papers* investigation, stated. However, collaborations also pose disadvantages. Journalists might have to cooperate with colleagues who work at lower standards, and if there is a leak involved, every additional person who knows about it increases the danger of being put at risk. Furthermore, there are some disadvantages at the operational level. The more people, the more complicated organisational aspects become, and much time is spent in meetings, phone calls, and in Skype conferences. Therefore, journalists should always consider whether the topic is suitable for a collaboration and whether it is really worth engaging in a collaboration: “Just because it’s modern and cool should not be an argument”, Obermayer emphasised.

More and more German news websites have implemented paywalls, but still most of our German interviewees were of the opinion that Germany is an “underdeveloped country” regarding paid content. Journalism professor Tanjev Schultz noted that it is very difficult to convince the audience to pay for journalistic content as digital pay models were introduced too late in Germany. Journalism professor Holger Wormer is of the opinion that media outlets need to experiment more with customised offers based on editorial analytics and algorithms for their paying audience. Furthermore, some journalistic projects, for example, from the fields of data and investigative journalism, should apply for public research grants more frequently.

Some newly-funded German media have been experimenting with crowd-based funding while

in search of a sustainable business model, such as *Correctiv*, *Krautreporter* and *Perspective Daily*. *Correctiv*, especially, founded in 2014, has made a name for itself, but founder Schraven emphasised that funding by foundations was never thought to be the only pillar of *Correctiv*'s business model. Instead, from the very beginning it was based on several financial pillars that had been developed over time. In Schraven's view community support is crucial as it is very risky depending on funding by foundations alone, as they can stop long-term funding. Therefore, further streams of income, like community funding in the form of memberships fees or donations, are steadily being developed. From early on, *Correctiv* has produced and sold books which are based on its investigative researches, e.g. "Weisse Wölfe", a graphic investigation into the Nazi underground. Currently, the business aspect is being developed further as *Correctiv* experiments with selling film rights about its investigations.

While most German interviewees agreed that today's media ethics are strongly shaped by the digital transformation, they also emphasised that challenges attributed to the advent of digitalization, such as fake news, hate speech and whistleblowing, are old phenomena as people spread rumours before the Internet was invented. Rather, journalism professor Lars Rinsdorf is of the opinion that fake news and the spread of misinformation are political challenges. Journalists can defeat them by applying well-known journalistic tools. However, Rinsdorf sees the need to discuss the consequences of automated news production in the near future as this approach will not stay limited to sports news, but might be applied to other areas of journalism, such as political analysis.

Since 2017, *Correctiv* has partnered with Facebook to fact-check material shared on the social network. "The old faith that truth will win did not work anymore as Facebook frames an echo chamber in which lies thrive – and we wanted to change that", Schraven stated. At the beginning *Correctiv* did not accept money from Facebook for its work on the platform, while now *Correctiv* is paid for its work there by Facebook.

Ever since Edward Snowden leaked classified information from the *National Security Agency* (NSA) in 2013, whistleblowing has become an important issue for journalists. The *Panama*

Papers were also released by a whistleblower. However, whistleblowers – insiders who expose corrupt or illegal activities – are nothing new and have always been an ethical challenge for journalists, the German interviewees agreed, as “it is not so different from handing over a file folder in earlier times” as journalism professor Rinsdorf said. The interviewees thought that back then and today the same journalistic methods apply: to cross-check whether what the source is saying is true and to protect it. The only key change is that today the communication between the journalist and the whistleblower is digitally encrypted.

PORTUGAL

COMPETENCES FOR FUTURE JOURNALISTS

In an environment that pushes towards digitalization, and with a set of great challenges to meet, as stated by most of the Portuguese lecturers and journalists interviewed, what could be called old journalistic competences (the ones that were important in the past, specially before access to the Internet became widely available) are still important. When it came to the basic and more traditional skills needed to become a good journalist curiosity, critical spirit, data verification and fact-checking were mentioned in all of the interviews, whether they were conducted with lecturers or journalists. For Sofia Branco, president of the Portuguese Journalists’ Union, and journalist at the Portuguese news agency *LUSA*, data verification and fact-checking abilities are still core for good journalistic practice. Helder Bastos (*University of Porto*) said that more traditional skills remain indispensable, namely investigative and reporting skills. António Granado (*Nova University Lisbon*) mentioned the ability to find and identify journalistic stories and good storytelling as very relevant competences, as well as the importance of good writing skills. Mastering the spoken and written language in which journalists report was raised by the majority of the interviewees as a very important skill that had not changed over time.

Paula Lopes (*University Autónoma of Lisbon*) pointed out the importance of what she calls “media and digital literacy”, that is, the capability to select and understand, as well as the critical analysis and the production of content for multiple platforms.

Most of the lecturers and journalists interviewed also mentioned the importance of ethics and de-

ontology. Luís António Santos (*University of Minho*) highlighted the importance of knowing the legal framework that defines journalism as a profession and of discussing ethical questions, not only in a theoretical way, but based on actual cases. For Santos, this discussion is fundamental in a time when it is very easy for a journalist to make mistakes or subvert the rules: “So, a solid framework on transparency and responsibility will make a difference when comparing journalism and other communication practices.”

For José Ricardo Carvalheiro (*University of Beira Interior*) it is crucial to be an honest interpreter of what he believes to be public interest, and not just be a servant of one’s employer trying to catch the public’s attention. This skill is essential for a good journalist, but not necessarily to “build a career”, because sometimes, not complying with the employer’s interests can be harmful for the journalist’s career. Another term that gathered consensus was curiosity. As the investigative journalist Paulo Pena (*Público*) put it: “Curiosity and a good background in social sciences allow journalists to improve public debate.”

Elisabete Rodrigues (*Sul Informação*) also highlighted the importance of soft skills, like the ability to cultivate relationships and sources, the ability to adapt to new situations, creativity and out-of-the-box thinking. She stressed that it is also important to know how institutions work (government, courts, police, hospitals, municipalities and other local authorities, etc.). Lecturer Luís António Santos reinforced the importance of critical thinking: “Journalists must have a critical spirit and a critical view of the world.” At the same time, however, he admitted that this is not an easy thing to teach. “I’m not sure how we can teach this, maybe giving the students more questions than answers”, he says. Gustavo Cardoso (*ISCTE-IUL*) emphasised: “If you do not have a broader view of the world, of the big social and political questions, if you do not understand the current ecosystem, you cannot do a good job as a journalist.” Besides the basic skills mentioned above it was consensual among the interviewees that digitization brought the need to add a new set of competences to the more traditional ones. The role of technology in making processes faster and giving journalists more tools to tell stories and to engage with their audiences, as well as the challenges the new technologies bring, are some of the changes mentioned by all of the interviewees. This reflects journalists’ practices and the need to modernise the curricula of journalism programmes, but if it is hard for the media

industry to keep up the pace of change, it is even harder for journalism education to do that. The journalist Elisabete Rodrigues (*Sul Informação*), considered that nowadays journalists should know how to take and edit a photo, how to record and edit video and audio, have the ability to tell stories with infographics and other visual resources, have basic programming knowledge, know how to interact and manage social networks, and know how to use social networks as sources of information. For Paula Oliveira (*TVI*) the most important skill nowadays is to embrace the digital culture, including how to handle mobile journalism, social media and Search Engine Optimisation (SEO) of words and titles, as well as being able to take good photos and operate a video camera.

At the same time, Luís António Santos (*Minho University*) emphasised journalists should have the generic ability to gather and analyse Internet information in some depth and in a more complex way than a common Internet user could do. In general, journalist Paulo Pena pointed out that, regardless of any technology, the most important issues are the professional discipline of verifying facts, the independence from the actors covered, and the social responsibility that should always frame journalistic ethics and professional actions.

ANALYSIS OF SELECTED CURRICULA

Digitalization in journalism education

Digitalization, multimedia and multiplatform publishing are present in all programmes. In some of them these topics are part of the core teaching elements, like at the *University of Porto*. "Since the beginning, our course programme always invested strongly in preparing our students for a multimedia work landscape. Their combined training in multimedia and multiplatform publishing is highly effective. In some cases, their preparation is on a higher level than the demands of the usual newsroom work", said Helder Bastos.

Almost all the universities offer courses on multimedia, special online writing techniques and multimedia language. Furthermore, at all of the universities there is always at least one big journalistic project produced in a digital format. "To know new storytelling formats and media is mandatory for any journalistic work", said Luís António Santos (*University of Minho*).

In general, the journalism educators interviewed agreed that new skills are being taught in their

university programmes, sometimes not in an explicit way, i.e. in a specific course, but they try to cope with the pace of innovation. However, as Luís António Santos noted, sometimes the pace is so fast that the information needed to set up a course is not sufficiently available, because the content of the new courses must be well thought through and follow specific rules. Instead, the programmes analysed try to set up extra-curricular practical workshops and seminars conveying some of the new skills.

Journalistic practice in journalism education

All of the programmes analysed offer some kind of practice but from the interviews we can see that what journalists think about their curricula is different from what scholars think about it. In general, the journalists interviewed thought that the Bachelor's programmes should involve more practice and have more teachers that work as journalists.

ISCTE-IUL's post-graduation programme is the most practical of the analysed programmes. It is run in cooperation with the *Media Capital Group* and allows students to learn in a real work environment. Students have classes with journalists and other specialists, as well as with professors from the university.

Paula Lopes (*University Autònoma of Lisbon*) stressed that in the programmes she teaches, there is an emphasis on practical experiences with classes taking place at very well-equipped TV, radio and online laboratories. Furthermore, there is a campus radio station and a TV station run by the students.

For the *University of Beira Interior*, José Ricardo Carvalheiro pointed out that the programme has a training newsroom where an online newspaper is produced by the students under the professors' supervision. Multimedia stories have been gradually introduced over the years. Currently they are preparing a new project named 'Innovation Lab in Local Media' (*University of Beira Interior* is located at Covilhã, a town in the interior of Portugal) that will include other areas of teaching, like business models. It is expected to start in the winter semester of 2018/19.

The scholars interviewed almost unanimously agreed that practice is something which is very much appreciated by the students. "Their feedback is highly positive. They appreciate above all the prac-

tical side of the course. They feel that the course provides them with the right skills for practice in the newsrooms”, said Helder Bastos (*University of Porto*). At his faculty, the Bachelor’s degree in journalism has its own online newsroom where students can practice and experiment, for example, with multimedia narratives during courses.

The lecturers agreed that the skills acquired during the programmes will be useful once their graduates go into the job market, although Helder Bastos highlighted that not all students will be able to apply their acquired knowledge: “Many media companies waste their skills because they do not take advantage of the possibilities offered by the new media. In fact, some students feel quite frustrated. During the courses, students are prepared to explore all the potential of new multimedia tools and platforms in various disciplines. By comparison, their routines in the newsroom feel basic and boring.”

Data journalism

Data journalism as a specific course is only offered on the postgraduate programme at *ISCTE-IUL*. The course aims to provide basic knowledge ranging from choosing the right sources, treating and analysing data to visualising data, and storytelling with data. Other universities have some courses on visualisation, i.e. the *University Autónoma of Lisbon*, but they have a broader focus, including print infographics etc. In some universities, although data journalism is not a course in itself, there are workshops or journalistic projects where students develop projects in this area. Luís António Santos explained that at the *University of Minho* they do not have data journalism as a course, “but every year the final project that students produce begins with data analysis, so we can say our students have contact with what is data journalism”. There are also some programmes with courses that are targeted at data analysis but related more to traditional social sciences analysis. José Ricardo Carvalheiro (*University of Beira Interior*) considers that it is an important subject, but it is not yet taught at his university.

Collaborative journalism

Collaborative journalism is not taught specifically in any of the universities analysed although students have some preparation for collaboration when they engage in team work for their proj-

ects. The *Nova University of Lisbon* has been part of a collaborative project, called *Repórteres em Construção (REC)* – Reporters in Construction, where journalism students from several universities produce investigative reporting for a website¹⁷ and a radio show on *Rádio Renascença*. Some scholars also mentioned the use of tools like *Slack* (a collaborative web-based tool) in some of their work. “About collaborative journalism, we don’t ignore it, but it’s not the focal point of any course. In general, we try to adapt the curricula, but I think we don’t do enough. I.e., we should have a permanent lab for students to develop their skills and we don’t”, said Luís António Santos (*University of Minho*). At the same time the lecturer highlighted that some subjects are so new that sometimes teachers know little more than students. “And the universities should not take the risk to follow the trends. Universities must think, analyse and reflect on recent problems and provide contextual teaching”, he said.

Business models

Of the programmes analysed only two offer specific courses on business models, at *ISCTE-IUL* ‘Entrepreneurial Journalism and Media Economics and Business’ and at the *University Autónoma of Lisbon* ‘Media, Economics and Business’. At the other programmes the issue is included in more generic courses. Hence, business models are an area that is seen as important but does not in general have much presence in the programmes. “Business models allow the students to have an idea on how the business works and understand the potential for future use”, said lecturer Luís António Santos. Journalist Elisabete Rodrigues stressed that knowledge of how the media sector and media businesses work is very important, and that this should be part of the journalism and media programmes.

Ethical challenges

All of the programmes analysed run courses in this area, some are more focused on law (i.e. Law, Deontology and Communication Ethics, Law and Communication Deontology), others on ethics (Ethics and Professional Deontology, Ethics and Communication Deontology), and others on deontology (Critical Studies and Media Deontology).

¹⁷ <https://www.cenfor.net/rec/>

Both lecturers and journalists acknowledged the importance of ethics in today's journalism. "I think the ethical challenges of today's journalists are different from those ten years ago; due to digital journalism, social networks and the quantity of information it has become an even more important topic", said Raquel Albuquerque (*Expresso*). For António Granado (*Nova University*) one of the main problems regarding the teaching of ethics is that "the graduates don't apply their acquired knowledge in their job as a journalist. What they learn about ethics has no practical use".

INNOVATION IN JOURNALISM EDUCATION AND THE MEDIA

Journalism education

The general opinion of media professionals consulted in Portugal is that there is a divide as not all journalism programmes in Portugal are keeping pace. There are many journalism and communication programmes, but only a few have high standards regarding this issue, said Helder Bastos (*University of Porto*). Luís António Santos (*University of Minho*) highlighted the effort his university made to restructure the programme to meet the general innovation demands but, in some ways, they had to compromise due to some limitations in terms of budget and teachers. António Granado (*Nova University*) was more pessimistic saying that with regard to innovation, the Portuguese journalism programmes are not innovative at all.

For José Ricardo Cavalheiro (*University of Beira Interior*) the generation gap between students and some of the teachers can be an obstacle when teaching new skills. He also commented that "being located in a peripheral rural area, with not much innovation in the existent media organisations, makes it more difficult to collaborate permanently with professional journalists who are up-to-date".

The journalists interviewed have a rather low opinion on academic journalism programmes; they think they should include more practice and encourage students to think outside the box. Raquel Albuquerque (*Expresso*) believes that courses should include statistical training, data analysis, Excel and computer graphics, and information visualisation techniques which are neglected in most programmes.

The main obstacles mentioned were the financial constraints that contribute, amongst others,

to the lack of good and up-to-date equipment. Only Helder Bastos stated that they have new equipment at the *University of Porto*. The lecturers considered that it would also be important to employ more journalists in academic journalism programmes to teach the practical side. However, legal and formal issues mean that they cannot be employed permanently.

The journalists interviewed agreed that the integration of active journalists as university journalism teachers is very important to guarantee a connection with professional practice. Journalism programmes should run more practical and less theoretical courses, said Sofia Branco (*LUSA*). Raquel Albuquerque (*Expresso*) also agreed with this approach as she stressed that journalism programmes must be able to give a practical approach showing the reality of the profession, including, for example, the journalistic production of news or contact with sources. Another obstacle mentioned by Luís António Santos (*University of Minho*) is the number of places for students; he thinks “there are too many places for journalism studies” and that is negative for the quality of teaching because the teachers have too many students and it is difficult to give them enough attention.

Innovation in the media

Portugal has a small media market where investments are mostly made by the major media groups. Smaller and independent projects are starting to arise, but they are facing the same problems as the big companies, that is, the challenge to achieve financial sustainability. This is the general opinion of the Portuguese interviewees. Helder Bastos (*University of Porto*) explained that media companies have changed in the past decade, not necessarily in the right direction, and today’s newsrooms tend to be smaller and faster in their production pace. Competition has become stronger, mainly in the online media. Investments in various platforms and in social media have led to an increasing demand for new professionals with specific skills to deal with the companies’ new strategies. However, in Bastos’ view, “only the mainstream media institutions are somehow keeping pace with the changing media markets”. António Granado (*Nova University*) believes that the Portuguese media industry is not keeping up with the pace of innovation. He pointed out that there are some experiments taking place but at a laboratory

level, and that lack of money is to blame for this lag in innovation.

Most of the lecturers and journalists pointed out that money continues to be the biggest constraint on innovation in the media. Portuguese media businesses are facing very large financial challenges, and these translate into obstacles for innovation. Most of our interviewees also mentioned a limited openness to innovation, declining revenues and audiences, downsizing and work overload. Helder Bastos (*University of Porto*) stated that most journalism graduates face enormous difficulties putting their know-how and skills into practice when they go into the newsrooms. This is in line with what Luís António Santos (*University of Minho*) stressed. He thinks that the biggest problem for innovative practices is the large group of professionals that resist change backed by management teams that have been there for the last 30 years. Still, Santos believes that in general, Portuguese media companies are keeping up with the pace of innovation.

Innovation in the fields of data journalism, collaboration, business models, and journalism ethics

Data journalism is seen as an area with potential in Portugal, which has not been explored sufficiently yet. The interviewees agreed that most work in this area takes place when linked to collaborative journalism, like in the case of the *Panama Papers*. Luís António Santos (*University of Minho*) pointed out that *Rádio Renascença*, *Expresso* and *Público* sometimes integrate data journalism in their work. However, the interviewees agreed that overall there are very few examples in the country.

Raquel Albuquerque mentioned some projects that she has been involved in at *Expresso* that may be considered to be data journalism. She analysed the European alert system for dangerous products and found that 49 alerts were issued within 10 years¹⁸. *Expresso* also publishes a weekly video on its website produced with information based on data analysis. Her colleague Paulo Pena has also done some work with data journalism, especially in cooperation with the news project *Investigate Europe*, and the articles were published in several newspapers in Europe and in Portugal.

Collaboration between media newsrooms is not very common, but there are some examples

18 <http://expresso.sapo.pt/dossies/diario/2018-03-12-Em-dez-anos-Europa-alertou-para-49-produtos-portugueses-perigosos#gs.Lm6NXYS>

that were pointed out by the journalists and journalism educators interviewed. Portuguese journalists (and the media they work for) have been involved in collaborative networks, like *Investigate Europe* and *ICIJ*. Elisabete Rodrigues referred to the creation of a collaborative project that the newspaper she leads (*Sul Informação*) will take part in: “With the participation of regional newspapers from across the country, the project aims to create an online news network, which shares content nation-wide.” None of the interviewees mentioned any examples of collaboration with the audiences.

None of those interviewed felt comfortable talking about business models. The interviewed partners agreed, in general, that it is very important for the media to find new business models. The journalism project *É Apenas Fumaça* (It is just smoke), that has just won funding from the Open Society Foundation, was mentioned as a good example of independent journalism.

The biggest ethical challenges mentioned were the overwhelming quantity of information and the increasing difficulty in dealing with journalistic sources, such as users of social media and whistle-blowers. The frenetic pace of the newsrooms nowadays is also seen as a problem that can bring ethical challenges. Journalists must be faster than their competitors, produce more news stories, and in many cases, they do not produce their own content but just copy and replicate content from news agencies, said António Granado (*Nova University*). Social media also bring challenges, such as clickbait, when headlines are designed to make readers want to click on a hyperlink which then leads to content of dubious value. Fake news and how to handle this is also seen as a challenge by journalists and scholars, and they agreed that more extensive fact checking practices are needed.

LESSONS LEARNED, INSIGHTS GAINED

All interviewees agreed that the on-going digitalisation of communication has been posing challenges to journalism on many levels, ranging from the need to create new streams of income to coping with the frenetic pace of an often overwhelming stream of information. Journalists and journalism educators agree that skills like curiosity, critical thinking, good writing or checking information are evergreen, but that in addition today's journalists must master new, technology-related skills like editing multimedia content or making secure use of digital communication channels.

One common theme presented by journalism educators was that there is no need to follow every trend, that journalism education should not try to include and embrace every new development in the industry, but teach core competences and only those trends that are significant. The role of journalism educators rather should be that of critics who observe developments in the media and implement new skills and tools in their teaching only if relevant.

However, all the institutions studied have adapted to the need of journalists to simultaneously create journalistic content for multiple platforms such as video and audio material, although on different levels. Similarly, journalism educators put increasing emphasis on journalistic practice. All the institutions offer a range of teaching newsrooms and journalistic projects as a mandatory part of their programmes. But while all the institutions in Romania and Germany ask their students also to gain more practical experience during internships in the media, in Hungary and Portugal only some programmes have so done the same. In Hungary, the situation is about to change. According to a new regulation, all students who have started their studies from the winter semester 2016/17 will have to do an internship of 80 hours minimum, preferably in the last semester of their studies.

Almost all the journalism education institutions acknowledge the importance of teaching ethics in the digital age and of conveying knowledge about new business models. However, while most of the institutions teach general media economics and discuss current developments with their

students, a minority focuses on the need to learn how to develop business plans and strategies for journalistic projects. The same is the case for the field of journalism ethics, which is taught by most of the sample, often in the form of lectures on media laws and media ethics. In some programmes, students discuss media ethics during journalistic projects or while working in teaching newsrooms. Courses that focus on single problematic aspects of the digital public sphere such as handling hate speech and the viral spread of fake news are exceptions.

None of the educational institutions, we analysed, teaches courses on collaborative journalism, but most put emphasise on teaching their students how to work in teams. Some discuss best-practice examples of collaborative journalism during lectures. As it is important to build networks with other universities and journalism programmes, nationally and cross-border, our collaboration will try to set a benchmark.

The journalism educators, we interviewed, often pointed out that it is quite difficult for universities to offer specific courses on the different topics as their institutions are often constrained by a lack of resources. This is especially true for the field of data journalism, which is taught as a special course by most German and Romanian institutions we analysed, but only a few in Hungary and Portugal. Clearly, financial constraints make it hard to teach courses, for which modern technical equipment needs to be bought and practicing data journalists need to be hired as lecturers. Hiring external expertise is necessary because most journalism educators do not have practical experience in data journalism and therefore cannot teach it adequately.

Besides financial constraints, one reason why Hungary lags behind in all four of our fields, is that there are no independent journalism programmes at higher education institutions. Journalism education is integrated into media and communication programmes which must include other content as well. The need to acknowledge journalism as an independent discipline (see also Weyer et al. 2015) is great, and only then would it be possible to teach journalism adequately and to provide future journalists with the professional skills their careers require.

Another reason for the differences in implementing innovation in journalism education could be the status quo of the media in the respective countries, which again becomes especially clear when looking at data journalism. While, for example, promising developments in the media as

well as in journalism education can be observed in Germany, newsrooms and universities in Romania and Hungary are not only struggling with a lack of time and resources, but also with economic and political constraints. However, there are bright spots as many new collaborative journalism networks have evolved in the two countries during the past few years, which have set up new business models to finance their often investigative and data-driven journalistic projects. This is especially so in Hungary, where small innovative newsrooms need a business model that ensures their political and economic independence. For example, the Hungarian journalist Gergely Dudás is currently working on the launch of the crowdfunded newsportal *Politis.hu*, but struggles with the reluctance that Hungarians have for paying for online contents – a notion his colleagues in Germany, Romania and Portugal can relate to. Other obstacles facing innovators in journalism and journalism education is the resistance to innovation by colleagues or supervisors who do not see the need for any transformation.

INTERVIEW PARTNERS

JOURNALISM EDUCATORS	
Romania	
Elena ABRUDAN	Babeş-Bolyai University, Cluj-Napoca / Journalism//Digital Media, BA
Gheorghe CLITAN	Universitatea de Vest (West University), Timișoara / Journalism, BA
Gabriel HASMAȚUCHI	Lucian Blaga University, Sibiu / Journalism, BA
Alexandru LĂZESCU	Alexandru Ioan Cuza University, Iași / Journalism, BA
Silviu Constantin ȘERBAN	Spiru Haret University, Bucharest / Journalism, BA
Raluca RADU	University of Bucharest / Journalism, BA
Hungary	
Ákos KOVÁCS	Pázmány Péter Catholic University, Budapest / Communication and Media Studies, BA
Ferenc HAMMER	Eötvös Loránd University, Budapest / Communication and Media Studies, BA
Péter MÉSZÁROS	University of Debrecen / Communication and Media Studies, BA
András MURAI	Budapest Metropolitan University (private) / Communication and Media Studies, BA
Zsolt SZIJÁRTÓ	University of Pécs / Communication and Media Studies, BA
Péter SZIRÁK	University of Debrecen / Communication and Media Studies, BA
Bertalan PUSZTAI	University of Szeged / Communication and Media Studies, BA
Germany	
Michael BRÜGGEMANN	University of Hamburg / Journalism and Communication Studies, MA
Klaus MEIER	Catholic University of Eichstätt-Ingolstadt / Journalism, BA
Marlis PRINZING	Macromedia University of Applied Sciences Cologne (private) / Journalism, BA
Lars RINSORF	Stuttgart Media University / Cross Media Journalism, BA
Tanjev SCHULTZ	Johannes Gutenberg University of Mainz / Journalism, MA

Holger WORMER	Technical University of Dortmund / Science Journalism, BA
Portugal	
Helder BASTOS	University of Porto / FLUP, Communication Sciences, BA
Gustavo CARDOSO	University Institute of Lisbon – ISCTE / Journalism, Post-graduation
José Ricardo CARVALHEIRO	University of Beira Interior / Communication Sciences, BA
António GRANADO	Nova University of Lisboa / Communication Sciences, BA
Paula LOPES	University Autónoma of Lisbon, Science Communication Department, BA
Luís António SANTOS	University of Minho / Communication Sciences, BA
JOURNALISTS	
Romania	
Răzvan IONESCU	Editor-in-chief of Recorder.ro, an online, private video journalism enterprise
Cristian LUPȘA	Editor-in-chief of Decât o Revistă, a private narrative journalism based magazine
Dan MARINESCU	Editor-in-chief of Adevărul, a private mainstream newspaper, print & online
Ilie NICOLA	General producer, news, for Digi24, an all-news, private television
Augustin ROMAN	Head of Digital Antena Group, a private media conglomerate
Monica ULMANU	Visual journalist with the Washington Post
Hungary	
Attila BABOS	Experienced journalist, co-founder of Szabad Pécs, an independent county news site
Attila BÁTORFY	Data journalist of the watchdog NGO and first non-profit centre for investigative journalism Átlátszó, teaches journalism courses at two universities in Budapest
Gergely DUDÁS	Former editor in chief of Index, one of the largest Hungarian news portals; about to launch politis.hu
Anita VORÁK	Prize-winning investigative journalist, working with the non-profit investigative journalism centre Direkt36
Balázs WEYER	Chairman of the Editor-in-Chief’s Forum, an NGO for editors and journalists that aims to raise, and keep safe, professional standards, journalism ethics, responsibility and transparency; guest lecturer at several universities

Germany	
Ulrike KÖPPEN	Head of the data journalism team of the regional broadcaster Bayerischer Rundfunk (BR Data)
Bastian OBERMAYER	Head of investigations at the daily national newspaper Süddeutsche Zeitung (SZ), who also led the Panama Papers investigation in cooperation with the International Consortium of Investigative Journalists (ICIJ)
Jens RADÜ	Head of multimedia at the weekly news magazine Der Spiegel
David SCHRAVEN	Experienced journalist, founder and currently publisher of the investigative research network Correctiv
Marie-Louise TIMCKE	Head of the interactive team at the regional newspaper Berliner Morgenpost (MoPo) and president of the data journalists' network Journocode
Portugal	
Raquel ALBUQUERQUE	Data journalist, worked for Público, currently with the weekly Expresso
Sofia BRANCO	Prize-winning journalist, president of the Portuguese journalists' union, currently working for the news agency LUSA
Paula OLIVEIRA	Editor-in-chief at TVI and Media Capital Digital's editorial director
Paulo PENA	Prize-winning journalist, formerly working for Visão magazine and Público, part of the collaborative project Investigate Europe
Elisabete RODRIGUES	Founder and editor-in-chief of the online newspaper Sul Informação; experienced journalist, journalism educator and lecturer at the University of Algarve

MEDIA VENTURES AND ORGANISATIONS

Name of Institution	Type of Institution	Country	URL
ActiveWatch	NGO, media oriented	Romania	activewatch.ro
Adevărul	Newspaper, daily, privately owned, national	Romania	adevarul.ro
Átlátszó	NGO, media oriented; data journalism blog, investigative portal	Hungary	atlatszo.hu Blog on data journalism: adatujsa-giras.atlatszo.hu
Bayrischer Rundfunk (BR)	Data team, public broadcaster	Germany	br.de/extra/br-data/index.html
Berliner Morgenpost (MoPo)	Data team, daily newspaper - regional	Germany	morgenpost.de/interaktiv
Blendle	News aggregator	Germany	blendle.com
Casa jurnalistului (The journalists' house)	News portal	Romania	casajurnalistului.ro
Centrul de Investigatii Media (Centre for Media Investigations)	Investigative journalism platform	Romania	investigatiimedia.ro
Chaos Computer Club	Hackers' association	Germany	ccc.de
Comissão da Carteira Profissional de Jornalista	Portuguese Journalists' Professional License Committee	Portugal	ccpj.pt
Correctiv	Investigative research network	Germany	correctiv.org
Decât o Revistă	Magazine, online	Romania	decatorevista.ro
Dela0.ro	Journal, online	Romania	dela0.ro
Digital Antena Group	Media conglomerate, privately owned	Romania	a1.ro
Digi24	TV news channel, privately owned	Romania	digi24.ro
Direkt36	Investigative journalism centre	Hungary	direkt36.hu
Documentaria	Independent news portal	Romania	documentaria.ro
É Apenas Fumaça (It is just smoke)	Journalism project	Portugal	apenasfumaca.pt
Editor-in-Chief's Forum	Forum, online, for editors and journalists	Hungary	foszerkesztokforuma.wordpress.com
Élet és Irodalom	Newspaper, weekly	Hungary	es.hu
Eic.network (European Investigative Collaborations)	Investigative journalism network	Europe	eic.network
Expresso	Newspaper, weekly	Portugal	expresso.pt
Expert Forum	Forum, online	Romania	expertforum.ro

Name of Institution	Type of Institution	Country	URL
Factcheck.hu	Fact-checking website operated by the think-tank of Fidesz, the ruling party	Hungary	factcheck.hu
Football Leaks	Largest data leak in the history of sport	Europe	eic.network/projects/football-leaks
Fundației Friends For Friends (Friends for Friends Foundation)	Foundation, independent, not-for-profit, media oriented	Romania	ffff.ro
Funke Mediengruppe	Local newspaper conglomerate	Germany	funkemedien.de
Figyelő	Business magazine, weekly	Hungary	figyelo.hu
Gazeta Sporturilor	Sports newspaper, daily	Romania	gsp.ro
Global Investigative Journalism Network (GIJN)	International association of NGOs that support and produce investigative journalism	international	gijn.org
The Guardian: Datablog	Datablog of the daily newspaper	United Kingdom	theguardian.com/data
HotNews	Independent news portal	Romania	hotnews.ro
HVG	Liberal magazine	Hungary	hvg.hu
Index	News portal	Hungary	index.hu
The Intercept	News organization, online	USA	theintercept.com
International Consortium of Investigative Journalists (ICIJ)	Global network of investigative journalists and media organizations in 70 countries	International	icij.org
Investigate Europe	Investigative journalists' network	France, Germany, Greece, Italy, Norway, Poland, Portugal, Great Britain	investigate-europe.eu
Journocode	Collaboration of journalists and computer scientists	Germany	journocode.com
Krautreporter	Magazine, online	Germany	krautreporter.de
LuxLeaks	Collaborative investigation that exposes how Luxembourg works as a tax haven on a global scale	Europe	icij.org/investigations/luxembourg-leaks
Magyar Narancs	Magazine, weekly	Hungary	magyarnarancs.hu
Mediapiac	Magazine, online	Hungary	mediapiac.com

Name of Institution	Type of Institution	Country	URL
Mertek Media Monitor	Media watchdog, not-for-profit, privately-funded NEWSREEL project leader Gábor Polyák is also the head of Mertek Media Monitor	Hungary	mertek.atlatszo.hu
MÚOSZ (Magyar Újságírók Országos Szövetsége)	National association of Hungarian journalists	Hungary	muosz.hu
The New York Times: The Upshot	Datablog of the daily newspaper	USA	nytimes.com/section/upshot
National Institute for Computer-Assisted Reporting	Training programme by the IRE (Investigative Reporters and Editors)	USA	ire.org/nicar
Nonio	Media aggregator	Portugal	nonio.net
Observatorul Român de Sănătate (Health Observatory)	NGO, research based	Romania	health-observatory.ro
Organized Crime and Corruption Reporting Project (OCCRP)	Investigative reporting platform	international	occrp.org
Origo	Portal, online	Hungary	origo.hu
Panama Papers	One of the biggest data leaks and largest collaborative investigation in journalism history	International	https://www.icij.org/investigations/panama-papers/
Paradise Papers	Global investigation into offshore activities	International	icij.org/investigations/paradise-papers
PATRIR (Peace Action, Training and Research Institute of Romania)	NGO, global peace oriented	Romania	patrir.ro
Perspective Daily	Magazine, online	Germany	perspective-daily.de
Politis.hu	Portal, online	Hungary	politis.hu
ProPublica	Non-profit investigative newsroom	USA	propublica.org
Público	Newspaper, daily	Portugal	publico.pt
Recorder	Video portal, online	Romania	recorder.ro
Re:publica	Festival of digital culture	Germany	re-publica.com
RISE Project	Journalistic collaborative	Romania	riseproject.ro
Romanian Center for Investigative Journalism (CRJI)	Media association	Romania	crji.org
Să fie lumină (Let be light)	Collaborative journalistic project	Romania	safielumina.ro

Name of Institution	Type of Institution	Country	URL
Der Spiegel	Multimedia section of weekly magazine	Germany	spiegel.de/multimedia
Süddeutsche Zeitung (SZ)	Newspaper, daily	Germany	sueddeutsche.de
Sul Informação	Newspaper, online	Portugal	sulinformacao.pt
Szabad Pécs	News portal, regional	Hungary	szabadpecs.hu
The Texas Tribune	Non-profit media organisation	USA	texastribune.org
VSquare	Network of independent media outlets	Poland, Hungary, Czech Republic, Slovakia	vsquare.org
Washington Post	Newspaper, daily	USA	washingtonpost.com
WikiLeaks	Not-for-profit organisation publishing leaks by anonymous sources	International	wikileaks.org
Zetta Cloud	App for verifying news	Romania	trustservista.com
444	News portal, independent	Hungary	444.hu
99percentinvisible	Journalistic podcast, crowdfunded	Portugal	99percentinvisible.org

LITERATURE

Alazañez-Cortés, Belén, Zayra Montserrat Miranda-Aguirre, Jocelyn Lizbeth Molina-Barradas, Erick Monroy-Cuevas, Rocío Abascal-Mena, Rodrigo Gómez-García, and Román Esqueda-Atayde. 2017. "Instructional Information System for the Introduction of Data Journalism Techniques Based on User Centered Design Methodology." In *HCI International 2017 – Posters' Extended Abstracts*, edited by Constantine Stephanidis. HCI 2017. Communications in Computer and Information Science, vol. 713. Cham: Springer.

Alfter, Brigitte. 2016. "Cross-Border Collaborative Journalism: Why Journalists and Scholars Should Talk about an Emerging Method." *Journal of Applied Journalism and Media Studies* 5, no. 2: 297-311.

Alfter, Brigitte. 2017. *Grenzüberschreitender Journalismus. Handbuch zum Cross-Border-Journalismus*. Köln: Herbert-von-Halem-Verlag.

Alfter, Brigitte. 2018. "New Method, New Skill, New Position? Editorial Coordinators in Cross-Border Collaborative Teams." In *Global Teamwork: The Rise of Collaboration in Investigative Journalism*, edited by Richard Sambrook. Oxford: Reuters Institute. https://reutersinstitute.politics.ox.ac.uk/sites/default/files/2018-03/sambrook_e-ISBN_1802.pdf.

ARACIS - Romanian Agency for Quality Assurance in Higher Education. 2017a. "Diagnoza domeniilor și a programelor de masterat." http://www.aracis.ro/fileadmin/ARACIS/Publicatii_Aracis/2017/Prezentare_Iasi/22_Prezentare_ARACIS_16_nov_CNR_Iasi_IOSUM.pdf.

ARACIS - Romanian Agency for Quality Assurance in Higher Education. 2017b. "Standarde specifice privind evaluarea externă - Comisia 4." http://www.aracis.ro/fileadmin/ARACIS/Legislatie_Proceduri/2017/30_august_4_Standarde_ARACIS_-_Comisia_4_Stiinte_Sociale_politice_si_comunicare_-_27_iunie_2017_varianata_finala.pdf.

Avădani, Ioana. 2017. "Of Journalists and Money: The Employment of Journalists in Romania and its Influence on Media Freedom and Quality." *International Journal of Communication* 11: 1975-97.

Bardoel, Jo, and Leen d'Haenens. 2004. "Media responsibility and accountability: New conceptualizations and practices." *Communications* 29, no. 1: 5-25.

Bastos, Hélder, and Fernando Zamith. 2012. *Ciberjornalismo – Modelos de Negócio e Redes Sociais*. Porto: Afrontamento.

Bátorfy, Attila. 2015. "10 kérdés az adatújságírásról, amit nem mertél megkérdezni." *Kreatív*, November 12, 2015. http://kreativ.hu/cikk/tiz_egeto_kerdes_az_adatujsagirasrol_amit_nem_mertel_megkerdezni.

BDZV. 2016. "Paid Content: Das Angebot digitaler Bezahlmodelle wächst weiter." http://www.bdzv.de/nachrichten-und-service/presse/pressemitteilungen/artikel/detail/paid_content_das_angebot_digitaler_bezahlmodelle_waechst_weiter/.

Beckett, Charlie. 2008. *Supermedia – Saving Journalism so it can Save the World*. Chichester: Blackwell Publishing.

Bergmann, Knut, and Leonard Novy. 2013. "Zur Konkretisierung der Debatte über philanthropische Finanzierungsmodelle." In *Journalismus in der digitalen Moderne. Einsichten, Ansichten, Aussichten*, edited by Leif Kramp, Leonard Novy, Dennis Ballwieder, and Karsten Wenzlaff, 201-12. Wiesbaden: Springer.

Berret, Charles, and Cheryl Phillips. 2016. *Teaching Data and Computational Journalism*. New York: Columbia School of Journalism.

Bertrand, Claude-Jean. 2000. *Media Ethics & Accountability Systems*. New Brunswick, London: Transaction Publishers.

Bradshaw, Paul. 2013. *Stories and Streams: Teaching collaborative journalism with peer to peer learning*. <http://leanpub.com/storiesandstreams>.

Brown, Lee. 1974: *The Reluctant Reformation: On Criticizing the Press in America*. New York: David McKay.

Butzke, Ariane. 2017. „Alternative Fakten sind out – diese Redaktionen haben sich dem Faktencheck verschrieben.“ Meedia, August 24, 2017. <http://meedia.de/2017/08/24/alternative-fakten-sind-out-diese-redaktionen-haben-sich-dem-faktencheck-verschrieben/>.

Cardoso, Gustavo, Carlos Magno, Miguel Crespo, and Tânia Morais Soares. 2016. *Modelos de Negócio e Comunicação Social*. Coimbra: Edições Almedina.

Castell, Frederick von, Tanjev Schultz, and Gabriele Glasstetter. 2018. "Vernetzung durch Datenjournalismus. Stabilität und Wandel von Redaktionsstrukturen." In *Vernetzung. Stabilität und Wandel gesellschaftlicher Kommunikation*, edited by Christiane Eilders, Olaf Jandura, Halina Bause, and Dennis Frieß, 24-41. Köln: Herbert von Halem.

Coman, Mihai, Daniela Popa, and Raluca Radu. 2018. "Romania: Unexpected Pressures for Accountability." In *The European Handbook of Media Accountability*, edited by Tobias Eberwein, Susanne Fengler, and Matthias Karmasin, 207-15. London: Routledge.

Comissão da Carteira Profissional de Jornalista. 2018. "Estatísticas." <https://www.ccpj.pt/pt/estatisticas/>.

Crespo, Miguel, Joana, Azevedo, João Sousa, Gustavo Cardoso, and Miguel Paisana. 2017. *Jornalistas e Condições Laborais: Retrato de uma Profissão em Transformação*. Observatório da Comunicação. https://obercom.pt/wp-content/uploads/2017/03/2017_OBERCOM_Jornalistas_Condicoes_Laborais.pdf.

De Haan, Yael, Annemarie Landmand, and Jan Lauren Boyles. 2014. "Towards Knowledge-Centred Newswork: The Ethics of Newsroom Collaboration in the Digital Era." In *The Ethics of Journalism. Individual, institutional and cultural influences*, edited by Wendy N. Wyatt, 207-28. London: I.B. Tauris.

Dernbach, Beatrice. 2016. "Ausbildung für Journalismus." In *Handbuch Journalismustheorien*, edited by Martin Löffelholz and Liane Rothenberger, 475-487. Wiesbaden: Springer VS.

DJV – Deutscher Journalisten-Verband. 2017. "DJV Info. Journalismus – mehr als ein Beruf. DJV – mehr als eine Gewerkschaft." https://www.djv.de/fileadmin/user_upload/Der_DJV/DJV_Infobrosch%C3%BCren/DJV_Imagebroschuere_Stand_08.2017.pdf.

DJV – Deutscher Journalisten-Verband. n.d. "Journalistenschulen/Studium." Accessed February 10, 2018. <https://www.djv.de/en/startseite/info/themen-wissen/aus-und-weiterbildung/journalistenschulenstudium.html>.

Donsbach, Wolfgang, Mathias Rentsch, Anna-Maria Schielicke, and Sandra Degen. 2009. *Entzauberung eines Berufs*. Konstanz: UVK.

Facebrands.ro. n.d. Accessed January 29, 2018. <http://www.facebrands.ro>.

Felvi. 2018a. "A képzést 2018. Szeptemberében elindító intézmények." https://www.felvi.hu/felveteli/szakok_kepzesek/szakleirasok/Szakleirasok/index.php/szak/51/kepzezt_indito_intezmenyek.

Felvi. 2018b. "Elmúlt évek statisztikái (2001/Á-2017/P)." https://www.felvi.hu/felveteli/ponthatarok_rangsorok/elmult_evek/ElmultEvek/index.php/elmult_evek_statisztikai/.

Fengler, Susanne, Tobias Eberwein, Gianpietro Mazzoleni, Colin Porlezza, and Stephan Russ-Mohl. eds.

2014. *Journalists and Media Accountability. An International Study of News People in the Digital Age*. New York: Peter Lang.
- Fengler, Susanne. 2003. „Holding the news media accountable: a study of media reporters and media critics in the United States.” *Journalism & Mass Communication Quarterly* 80, no.4: 818-32.
- Fengler, Susanne. 2012. “From Media Self-Regulation to ‘Crowd-Criticism’: Media Accountability in the Digital Age.” *Central European Journal of Communication* 5, no. 2: 175-89.
- Foà, Caterina, and Gustavo Cardoso. 2016. “Modelos de Monetização do Valor Económico da Informação.” In *Modelos de Negócio e Comunicação Social – Legacy Media, Novos Media, ‘Telcos’ e Start-Ups jornalísticas*, edited by Gustavo Cardoso, Carlos Magno, Tânia Morais Soares, and Miguel Crespo, 355-400. Coimbra: Almedina.
- Foreman, Gene. 2016. *The Ethical Journalist: Making Responsible Decisions in the Digital Age*. Chichester: Wiley-Blackwell.
- Ganea, Liana, Maria Popa, Răzvan Martin, and Adrian Szelmenczi. 2015. *FreeEx Report – Media freedom in Romania 2014-2015*. Active Watch Romania. [http://www.activewatch.ro/Assets/Upload/files/Free-Ex%20Report%202014-2015\(3\).pdf](http://www.activewatch.ro/Assets/Upload/files/Free-Ex%20Report%202014-2015(3).pdf).
- Ganea, Liana, Răzvan Martin, Maria Popa, Adrian Mogoș, and Laura Ștefănuț. 2014. *FreeEx Report – Media freedom in Romania 2013*. Active Watch Romania. [http://www.activewatch.ro/Assets/Upload/files/Libertatea%20presei%20in%20Romania%202013\(1\).PDF](http://www.activewatch.ro/Assets/Upload/files/Libertatea%20presei%20in%20Romania%202013(1).PDF).
- Gillmor, Dan. 2016. “Towards a new model for journalism education.” *Journalism Practice* 10, no. 7: 815-19.
- Gorman, Brian. 2015. *Crash to Paywall – Canadian Newspapers and the Great Disruption*. Kingston: McGill-Queen’s University Press.
- Gossel, Britta. 2015. “Quo Vadis Journalistenausbildung? Teil 2: Beschreibung, Bewertung und Verbesserung der journalistischen Ausbildung.” In *Diskussionspapiere Menschen – Märkte – Medien – Management*, edited by Andreas Will. https://www.db-thueringen.de/servlets/MCRFileNodeServlet/dbt_derivate_00032011/DMMMM-2015_02.pdf.
- Gray, Jonathan, Liliana Bounegru, and Lucy Chamber. 2012. *The Data Journalism Handbook*. Sebastopol: O’Reilly Media.
- HAC – Hungarian Accreditation Committee. 2016. www.mab.hu/mab/tir/kkk/KKK_18_2016_EMMI_160902.docx
- Hammond, Philip. 2017. “From Computer-Assisted to Data-Driven: Journalism and Big Data.” *Journalism* 18, no. 4: 408-24.
- Heesen, Jessica. ed. 2016. *Handbuch Medien- und Informationsethik*. Stuttgart: Metzler.
- High Level Expert Group on Fake News and Online Disinformation. 2018. “A multi-dimensional approach to disinformation.” <https://ec.europa.eu/digital-single-market/en/news/final-report-high-level-expert-group-fake-news-and-online-disinformation>.
- High Level Group on Media Freedom and Pluralism. 2013. “A free and pluralistic media to sustain European democracy.” http://ec.europa.eu/information_society/media_taskforce/doc/pluralism/hlg/hlg_final_report.pdf.
- Hill, John. 2015. “The economics of paywalls.” In *Content Is King – News Media Management in the Digital Age*, edited by Gary Graham, Anita Greenhill, Donald Shaw, and Chris J. Varco, 219-27. New York: Bloombury Academic.
- Hooffacker, Gabriele, and Klaus Meier. 2017. *La Roches Einführung in den praktischen Journalismus*. Mit

genauer Beschreibung aller Ausbildungswege Deutschland · Österreich · Schweiz. 20th ed. Wiesbaden: Springer.

Hooffacker, Gabriele, and Peter Lökk. 2017. "Online-Journalisten – wer, wie, was, und wenn ja, wie viele? Versuch einer Beschreibung als Basis für Curricula im Online-Journalismus." In *Technische Innovationen – Medieninnovationen?*, edited by Gabriele Hooffacker, and Cornelia Wolf, 34-46. Wiesbaden: Springer.

Howard, Alexander Benjamin. 2014. *The Art and Science of Data-Driven Journalism*. New York: Tow Center for Digital Journalism, Columbia University. <https://towcenter.org/wp-content/uploads/2014/05/Tow-Center-Data-Driven-Journalism.pdf>.

Howe, Jeff, Aleszu Bajak, Dina Kraft, and John Wihbey. 2017. "Collaborative, Open, Mobile: A Thematic Exploration of Best Practices at the Forefront of Digital Journalism." Working Paper. <http://www.storybench.org/docs/collaborative-open-mobile-whitepaper.pdf>.

Hudson, Michael. 2017. "Panama Papers Wins Pulitzer Prize." *ICIJ Blog*, April 7, 2017. <https://www.icij.org/blog/2017/04/panama-papers-wins-pulitzer-prize/>.

Hultén, Gunilla, and Malin Picha Edwardsson. 2017. "Storylab Lessons. A Collaborative Project Between Courses in Journalism and Media Technology." *Nordicom Review* 39, no. 1: 1-15.

ICIJ.org - International Consortium of Investigative Journalists. n.d. Accessed April 11, 2018. <https://www.icij.org/investigations/panama-papers/>.

INS - National Institute of Statistics. 2017. "2016 Romanian Statistical Yearbook." http://www.insse.ro/cms/sites/default/files/field/publicatii/anuar_statistic_al_romaniei_2016_format_carte.pdf.

Ionescu, Liana. 2016. "Romania: Students asking for new teaching methods and better equipment." In *Requirements for Modern Journalism Education – The Perspective of Students in South East Europe*, edited by Viktorija Car, Mirosljub Radojkovic, and Manuela Zlateva, 102-135. Konrad Adenauer Stiftung. http://bib.irb.hr/datoteka/845330.2016_Car_Radojkovi_Zlateva_Requirements_for_Modern_Journalism_Education.pdf.

Kansky, Holger. 2015. „Paid-Content-Modelle in der Übersicht." In *Vom Zeitungsverlag zum Medienhaus. Geschäftsmodelle in Zeiten der Medienkonvergenz*, edited by Thomas Breyer-Mayländer, 83-102. Wiesbaden: Springer Gabler.

Kappes, Christoph, Jan Krone, and Leonard Novy. eds. 2017. *Medienwandel kompakt 2014-2016. Netzveröffentlichungen zu Medienökonomie, Medienpolitik und Journalismus*. Wiesbaden: Springer.

Klein, Scott. 2016. "Infographics in the Time of Cholera." *ProPublica*, March 16, 2016. <https://www.propublica.org/nerds/infographics-in-the-time-of-cholera>.

Koch, Anne. 2018. "Investigative Journalism and Advocacy: Natural Allies?" In *Global Teamwork: The Rise of Collaboration in Investigative Journalism*, edited by Richard Sambrook. Oxford: Reuters Institute. https://reutersinstitute.politics.ox.ac.uk/sites/default/files/2018-03/sambrook_e-ISBN_1802.pdf.

Kueng, Lucy. 2017. *Going digital – A Roadmap for Organizational Transformation*. Oxford: Reuters Institute. <https://reutersinstitute.politics.ox.ac.uk/sites/default/files/2017-11/Going%20Digital.pdf>.

Lazăr, Mirela, and Raluca Radu. 2012. "Requestionner les balises deontologiques pour les pratiques du cyberjournalisme: Le cas roumain." *Multimed. Revista do Reseau Mediterraeneen de Centres d'Etudes et de Formation* 1, no. 1: 55-69.

Lilienthal, Volker. 2017. "Recherchejournalismus für das Gemeinwohl. Correctiv – eine Journalismusorganisation neuen Typs in der Entwicklung." *Medien & Kommunikationswissenschaft* 65, no. 4: 659-81.

Loker, Kevin. 2012. "At \$170,000+, '99% Invisible' Becomes Most Funded Kickstarter in Journalism."

- Adweek, August 12, 2012. <https://www.adweek.com/digital/99-invisible-most-successful-funded-kick-starter-public-radio-journalism/>.
- Marzolf, Marion T. 1991. *Civilizing voices: American press criticism 1880–1950*. New York: Longman.
- Matzat, Lorenz. 2017. "Datenjournalismus 2015 im Rückblick." In *Medienwandel kompakt 2014-2016. Netzveröffentlichungen zu Medienökonomie, Medienpolitik und Journalismus*, edited by Christoph Kap-pes, Jan Krone, and Leonard Novy, 261-64. Wiesbaden: Springer.
- McBride, Kelly B., and Thomas B. Rosenstiel. 2013. *The New Ethics of Journalism: Principles for the 21st Century*. London, New Delhi, Singapore: SAGE Publications Ltd.
- McQuail, Denis. 2003. *Media Accountability and Freedom of Publication*. New York: Oxford University Press.
- MediaAct. 2013. "European Policy Brief." http://www.mediaact.eu/fileadmin/user_upload/policy_brief3_01.pdf.
- Mérték Media Monitor. 2017. *Soft Censorship in Hungary in 2016: When Propaganda Rules Public Dis-course*. Mérték Booklets Vol. 12. <http://mertek.eu/wp-content/uploads/2017/10/MertekFuzetek12.pdf>.
- Meyen, Michael, and Nina Springer. 2009. *Freie Journalisten in Deutschland*. Konstanz: UVK.
- Mogoş, Andreea, and Radu Meza. 2013. "New trends in journalism curriculum development. Romania within international context." *Studia Universitatis Babeş-Bolyai, Ephemerides* 58, no. 1: 107-118.
- Muller, Denis. 2014. *Journalism Ethics for the Digital Age*. Brunswick, London: Scribe Publications.
- Newman, Nic. 2018. *Journalism, Media and Technology Trends and Predictions 2018*. Oxford: Reuters Institute <https://reutersinstitute.politics.ox.ac.uk/sites/default/files/2018-01/RISJ%20Trends%20and%20Predictions%202018%20NN.pdf>.
- Nordenstreng, Kaarle. 1999. "European landscape of media self-regulation." In *Freedom and Responsibility: Yearbook 1998/99*, edited by OSCE, 169-85. Vienna: OSCE.
- Parasie, Sylvain, and Eric Dagiral. 2013. "Data-driven journalism and the public good: 'Computer-assisted-reporters' and 'programmer-journalists' in Chicago." *New Media & Society* 15, no. 6: 853-71.
- Petrányi-Széll, András. 2017. "Politis.hu: A kampány rossz, nem a koncepció." *Kreatív*, December 15, 2017. http://kreativ.hu/cikk/politis_hu_a_kampany_rossz_nem_a_koncepcio.
- Pinto Martinho, Ana. 2013. "Jornalismo de Dados: Contributo para uma Caracterização do Estado da Arte em Portugal." Master's Thesis, ISCTE – University Institute of Lisbon. https://repositorio.iscte-iul.pt/bitstream/10071/8329/1/2013_ESPP_DSOC_Disserta%C3%A7%C3%A3o_AnaPintoMartinho.pdf.
- Preoteasa, Manuela, Iulian Comanescu, Ioana Avadani, and Adrian Vasilache. 2010. *Mapping Digital Media: Romania*. Open Society Foundations. <https://www.opensocietyfoundations.org/reports/mapping-digital-media-romania>.
- Prieto, Miguel Carjaval. 2015. "Economía del periodismo: modelos de negocio en la era de las plataformas." In *X Jornadas Internacionales De Periodismo UMH - Innovar En Periodismo*, edited by José Alberto García Avilés, José Luis Ferris, and José Luis González, 155-169. Murcia: DM Librero-Editor.
- PV Digest. 2016. "Deutsche Publikumspressen mit 320Mio€ jährlichem Paid Content Umsatz." <http://pv-digest.de/kurzanalysen/#PaidContent2016>.
- Radu, Raluca. 2017. "Where do we get medical information from and why does it matter." https://www.researchgate.net/publication/315112279_Where_do_we_get_medical_information_from_and_why_does_it_matter_Understanding_transition_V_Bucharest_16-17_March_2017.

Rinsdorf, Lars, and Raoul Boers. 2016. "The need to reflect: Data Journalism as an aspect of disrupted practice in digital journalism and in journalism education." Paper to the IASE 2016, <http://iase-web.org/documents/papers/rt2016/Rinsdorf.pdf>.

Rise Project. 2013. *Annual Report 2012*. <https://www.riseproject.ro/wp-content/uploads/2013/09/Raport2012.pdf>.

Róka, Jolan, Lydia Frost, and Thomas Hanitzsch. 2015. "Journalists in Hungary. Country report - Worlds of Journalism Study." https://epub.ub.uni-muenchen.de/32086/1/Country_report_Hungary.pdf.

Russ-Mohl, Stephan. 2017. *Die informierte Gesellschaft und ihre Feinde: Warum die Digitalisierung unsere Demokratie gefährdet*. Köln: Herbert von Halem Verlag.

Sadrozinski, Jörg. 2013. "Zwischen Beruf und Berufung. Wie sich das Bild des Journalisten wandelt." In *Journalismus in der digitalen Moderne*, edited by Leif Kramp, Leonard Novy, Dennis Ballwieser, and Karsten Wenzlaff, 81-98. Wiesbaden: Springer VS.

Sambrook, Richard. ed. 2018. *Global Teamwork: The Rise of Collaboration in Investigative Journalism*. Oxford: Reuters Institute https://reutersinstitute.politics.ox.ac.uk/sites/default/files/2018-03/sambrook_e-ISBN_1802.pdf.

Schächtele, Kai. 2017. "Die Krautreporter. Kritik der Kritiker." In *Medienwandel kompakt 2014-2016. Netzveröffentlichungen zu Medienökonomie, Medienpolitik und Journalismus*, edited by Christoph Kappe, Jan Krone, and Leonard Novy, 369-72. Wiesbaden: Springer.

Simon, Joel. 2015. *The new censorship. Inside the global battle for media freedom*. New York, Chichester, West Sussex: Columbia University Press.

Splendore, Sergio, Philip Di Salvo, Tobias Eberwein, Harmen Groenhart, Michal Kus, and Colin Porlezza. 2016. "Educational strategies in data journalism: A comparative study of six European countries." *Journalism* 17, no. 1: 138-52.

Steindl, Nina, Thomas Hanitzsch, and Corinna Lauerer. 2017. "Journalismus in Deutschland. Aktuelle Befunde zu Kontinuität und Wandel im deutschen Journalismus." *Publizistik* 62, no. 4: 401-23.

Stonbely, Sarah. 2017. *Comparing Models of Collaborative Journalism*. Montclair State University and The Center for Cooperative Media. <https://collaborativejournalism.org/wp-content/uploads/2017/09/Models-for-Collaborative-Journalism-research-paper.pdf>.

Sturm, Simon. 2013. *Digitales Storytelling. Eine Einführung in neue Formen des Qualitätsjournalismus*. Wiesbaden: Springer.

Sueddeutsche.de. n.d. "Panama Papers." Accessed February 6, 2018. <http://panamapapers.sueddeutsche.de/>.

Tivadar, Simona. 2017. *Medicină, nutriție și bună-dispoziție*. Bucharest: Humanitas.

TU Dortmund University, Institute for Journalism, Department of Science Journalism. 2015. "Das ‚Who is Who‘ im deutschen Datenjournalismus." <https://wj.ifj.tu-dortmund.de/datenjournalismus/who-is-who>.

University of Bucharest, FJSC - Faculty of Journalism and Communication Studies. 2012. "Conferința de presă MediaAct." <http://www.fjsc.unibuc.ro/anunturi/anunturi-de-interes-general/conferintadeprezentarearezultatelorceretariimediaact19decembrie2012>.

Vrabec, Norbert. 2015. "Data Journalism as a Tool to Increase Media Literacy Among Media Professionals." *Marketing Identity* 1, no. 2: 544-52.

Weinacht, Stefan and Ralf Spiller. 2014. "Datenjournalismus in Deutschland. Eine explorative Studie zu Rollenbildern von Datenjournalisten." *Publizistik* 59, no. 4: 411-33.

Weischenberg, Siegfried, Maja Malik, and Armin Scholl. 2006. *Die Souffleure der Mediengesellschaft. Report über die Journalisten in Deutschland*. Konstanz: UVK Verlagsgesellschaft.

Weyer, Balázs, Dominika Bozóki, Bence Bán, and Blanka Zöldi. 2015. "Felmérés a magyarországi médiaképzésekről. Munkanyag a Magyarországi Tartalomszolgáltatók Egyesülete számára." *Médiakutató*, XVI. évf. 1. szám http://www.mediakutato.hu/cikk/2015_01_tavaszi/02_mediakepzes_kommunikacio_szak.pdf.

Wormer, Holger. 2018. "Mind the Statistics Gap: Science Journalism as a Bridge Between Data and Journalism." In *News, Numbers and Public Opinion in a Data-Driven World*, edited by An Nguyen, 228-34. Bloomsbury Academic: London.

Wyatt, Wendy N. ed. 2014. *The Ethics of Journalism. Individual, institutional and cultural influences*. London: I.B. Tauris.

Zielonka, Jan. 2015. "Fragile Democracy, Volatile Politics, and the Quest for a Free Media." In *Media and Politics in New Democracies*, edited by Jan Zielonka, 1-19. Oxford: Oxford University Press.

Zion, Lawrie, and David Craig. 2016. *Ethics for Digital Journalists: Emerging Best Practices*. New York, Oxon: Routledge.