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Supplement 1: Mailing List

This mailing list should complement deliverable D5.8 (D28) e-mail database of organisations and individuals, prepared by NUI Galloway as of February 28, 2018. The mailing lists include all researchers who tackled social media and convergence at least once and sometimes perhaps only indirectly and we have been able to identify their email addresses. There are also the names of foreign authors who published either in that particular country or in co-authorship with researchers from that particular country. The correctness of mailing lists has been checked as of September 2018. We plan to update irregularly these mailing lists during the life-span of our project. We believe that these mailing lists can be useful not only for other researchers but also for all stakeholders interested in issue of convergence and social media. The countries covered are those we focused within our research – i.e. about twenty EU countries. In addition to mailing list roughly based on country of origin, we have prepared mailing list based on research focus.

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Supplement 2: Manual for WP 1

Introduction

This Manual serves as a general introduction and terminological/conceptual standard-setting material for our comprehensive survey (D1.1.+D1.3, Parts 1 and 2). This Manual defines and explains in Parts 3 and 4 the key indicators. It supplements the Excel Table that should be filled in.

This document aims at clarifying controversial terms, however it is not intended as a comprehensive guide. For example, we discussed at the kick-off meeting whether Twitter is a general "universal" social media tool or a specific ("specialised") social media tool. It was also highlighted that our list of social media may be incomplete. It should be noted that these are just examples. Moreover, it is irrelevant at this stage to discuss such details about Twitter. These are intended merely as conceptual and methodological categories and definitions for those who are less familiar with this agenda. Moreover, as you can see below, some definitions still remain open to interpretation. What is important~~,~~ is to fill in the attached Excel Table according to these instructions (in the Part 3).

Some parts are left empty – these are tasks for other WPs. Nevertheless, they can help you and us too. For example, if you look at normative definitions of social media in your country (legislation or code of ethics and similar normative documents), you may point in your report as well as when you will be searching for, and coding articles, at conceptual differences (or similarities) with those definitions we have compiled here. This may mean that your sample will be different. Nevertheless, based on our experimental/pilot survey, it appears that no simple technical solution can replace or substitute human involvement during this work. As was highlighted during the kick-off meeting, the only article that included a word "convergence" in its title among our 300 samples, was actually a philosophical essay about changes in journalism as a result of convergence. We assigned it a very low (scientific as well as practical) relevance. In other words, a search based on the appearance of typical key words does not yield reasonable enough results.

What is the overall goal of our effort? Let us quote from our project proposal. It is *"Facilitate research and policy exchange in Convergence and Social Media by: increasing awareness of the latest technological developments among policy stakeholders, making researchers aware of the current and future policy and regulatory framework and monitoring the state of the art of the European Media and Content sector in a digital single market"*, moreover,

„Support R&D programmes/activities, dissemination of results and organisation of scientific and/or policy events in Convergence and Social Media. Analysis and development of research agendas and roadmaps, pre-standardisation initiatives and stakeholders coordination in Convergence and Social Media."

WP 1 has following tasks:

- **State of the art research on Convergence and Social Media**
- **Future Research on Convergence and Social Media**

- **Report on Media Regulators and Convergence**
- **A compendium on R&D programmes/ activities** (The final results will also be presented in charts and graphs that will be specified later on).

We do not expect you to cover 100% of the available sources. However, it is necessary to look at different sources. For example, there are many sources – especially in this area – that are available on CDs in libraries only. These include materials from conferences and seminars. You may discover specialised online journals „published"in your country (with free access) you have never heard of before. You may be surprised to find that the majority of sources you find are produced by faculties and departments of management and/or marketing (and not communication and/or journalism).

There are some issues/indicators that need double-checking: these are first of all, *relevance*, and possible problematic areas include: *main purpose, type, regulatory issue, research method.* We have discussed this issue extensively during the kick-off meeting. We have also provided results of our pilot projects in these areas. A partial solution is that we agreed to have some alternative options stated in some cases (you will see them in parts 3 and 4). However, it is unproductive to have alternative options in other cases. For example especially with regard to *relevance* (although this is sometimes a controversial issue too).

Why is relevance so important for us? Well, we can potentially receive hundreds of articles for each country. For the whole COMPACT Project this may result in thousands of articles. Although there will be a search option (based on key words), even a diligent researcher may still face hundreds of articles of questionable relevance – or of questionable quality and importance. Moreover, there are alternative sources the researcher in question can use (e.g. Google Scholar and similar). Indeed, our Pilot survey identified very low relevance of majority of items among our sample.

If we want to present deliverable „*State of the art research on Convergence and Social Media*" and „*Future Research on Convergence and Social Media*", we certainly need a more refined output from national teams. For these reasons, we have decided to create a database ccontaining selected articles (you will find for it a Special Sample Template, working title can also be *The Best of Best*). There is also an additional Special Sample Template for non-scientific articles. These non-scientific articles will be selected from January 2018 till June 2018. We are interested in excerpts from interviews and opinions (visions, trends) of ~~the~~ key local experts, or international experts visiting your country or those giving interviews for your media. Obviously, we may also find some useful materials for this purpose from our large scientific sample.

What are suggested approaches with regard to relevance of our larger database? There are two most likely used approaches. Either to have a top expert ~~(~~in this area, or a top scientist in general for this partial task(s), or to have two independent assessors (for these partial tasks).

Most recently, we have received this suggestion with respect to defining relevance. *„Perhaps the best way to assess relevance would be to develop a couple of indicators that all the teams could use. To give an example, one such indicator could be "the reference to social media (or specific social media) in the title of the article" or "the reference to social media (or specific social media) in the abstract of the article"*

Unfortunately, based on our Pilot survey, and as explained previously and at the kick off meeting, this (mostly) does not work.

There was a suggestion at the kick-off meeting that it may be possible to use software-based analytical tools. The idea was to identify relevance based on selected key words and phrases. However in order to accomplish this we would need a country specific (and/or language specific) terminology. It does not mean using only obvious terms such as „social media“ and „convergence“ It means a more complex and more refined sets of words and phrases (we discuss this issue below). Feel free to experiment in this direction.

We would appreciate your feedback on or before December 31. However, in principle, we do not expect any significant changes to this Manual. Therefore, feel free to start your work!

1) DEFINITIONS OF SOCIAL MEDIA

BY LINGUISTIC AND OTHER GENERAL SOURCES

DEFINITION	SOURCE
Social Media (SM) refers to technologies, platforms, and services that enable individuals to engage in communication from one-to-one, one-to-many, and many-to-many.	Encyclopaedia Britannica
SM refers to websites and computer programs that make communication possible with the use of computers or mobile phones. Social media can take the singular or plural form of the verb.	COBUILD Advanced English Dictionary https://www.collinsdictionary.com/dictionary/english/social-media
SM is the collective of online communications channels dedicated to community-based input, interaction, content-sharing and collaboration.	TECHTARGET http://whatis.techtarget.com/definition/social-media
Websites and applications that enable users to create and share content or to participate in social networking	https://en.oxforddictionaries.com/definition/social_media
Websites and other online means of communication that are used by large groups of people to share information and to develop social and professional contacts	http://www.dictionary.com/browse/social-media
forms of electronic communication (such as websites for social networking and microblogging) through which users create online communities to share information, ideas, personal messages, and other content (such as videos)	Merriam-Webster

BY ACADEMICS/REGULATORS/INTERNATIONAL ORGANISATIONS

DEFINITION	AUTHOR	SOURCE
Social networking sites offer people new and varied ways to communicate via the internet. They allow people to easily and simply create their own online page or profile and to construct and display an online network of contacts, often called 'friends'. Users of these sites can communicate via their profile both with their 'friends' and with people outside their list of contacts.	Ofcom	https://www.ofcom.org.uk/research-and-data/internet-and-on-demand-research/internet-use-and-attitudes/social-networking, 2008
SM refers to activities, practices and behaviors among communities of people who gather online to share information, knowledge and opinions using conversational media. Conversational media are Web-based applications that make it possible to create and easily transmit content in the form of words, pictures, videos, and audios.	Lon Safko, David K. Brake: The Social Media Bible	2012 third edition
• provide feedback • are not only a source of information, but also a way to exchange and find information, create connections between members of social networks • they form a place that allows to apply various types of advertising • they help to acquire new clients • enable to spread the reputation and positive feedback about the products	Radovan Bačík, Richard Fedorko	social networking site twitter as a marketing tool of customer support,eXclusive e-JOURNAL Vol. 2, no. 1 (2014), s. 33-42.
- make it possible for everyone in the network to be simultaneously producer, distributor, and consumer of content - its power comes from the connections between its user. - allows users to coordinate activities between themselves "on scales and at speeds that were not previously possible."	Howard Rheingold	Encyclopaedia Britannica

NORMATIVE DEFINITIONS OF SOCIAL MEDIA

(Legal Acts and Code of Ethics)

COUNTRY	PRESS OR MEDIA ACT	PENAL ACT	CIVIL LAW	OTHER LAW	CODE OF ETHICS OF A JOURNALIST
SK	**No**, only Internet broadcasting and on-demand audiovisual media services – subject to self-reporting for regulation (Act 308/2000)	**No**, but some paragraphs have already been applied to SM	**No**, but some paragraphs have already been applied to SM	Personal Data Protection (January 2018 registration FB: 16+)	**No**, only reference to regulation of content copied from the Internet.

CATEGORIES OF SOCIAL MEDIA

(Examples)

UNIVERSAL	**SPECIALISED**
Facebook	Twitter (?)
YouTube	LinkedIn
Instagram	Letsgo
Google+	Blogs (IT specialists)
WhatsApp	

CATEGORIES OF USERS OF SOCIAL MEDIA

TYPE	**DEFINITION**
Alpha Socialisers	(a minority) people who used sites in intense short bursts to flirt, meet new people, and be entertained
Attention Seekers	(some) people who craved attention and comments from others, often by posting photos and customising their profiles
Followers	(many) people who joined sites to keep up with what their peers were doing
Faithfuls	(many) people who typically used social networking sites to rekindle old friendships, often from school or university.
Functionals	(a minority) people who tended to be single-minded in using sites for a particular purpose.
Non-users	Non-users of social networking sites also fall into distinct groups: 2. Concerned about safety – people concerned about safety online, in particular making personal details available online. 3. Technically inexperienced – people who lack confidence in using the internet and computers. 4. Intellectual rejecters – people who have no interest in social networking sites and see them as a waste of time

RULING	Key Ideas
CASE OF DELFI AS **v. ESTONIA** (2015)	in particular **the extreme nature of the comments** in question, the fact that the comments were posted in reaction to an article published by the applicant company on its **professionally managed news portal run on a commercial basis**, **the insufficiency of the measures taken** by the applicant company **to remove without delay after publication comments amounting to hate speech and speech inciting violence** and **to ensure a realistic prospect of the authors of such comments being held liable**, and **the moderate sanction** imposed on the applicant company, the Court finds that the domestic courts' imposition of liability on the applicant company was based on relevant and sufficient grounds, having regard to the margin of appreciation afforded to the respondent State

2) DEFINITIONS OF CONVERGENCE AND SOCIAL MEDIA

In most general terms convergence means areas or processes coming together. However, there is no one accepted definition of convergence and often it is rendered in a more or less descriptive manner. Media convergence can be explained in many ways - through the convergence of the media and the telecommunications' sectors, through the convergence of the media and the new communications services and the emergence of common platforms and services between various operators, hardware and software manufacturers, print, electronic and new communication service outlets and Internet service providers, or as the convergence of various networks or different media content in the digital age.

Author/Source	**Definition**
	The interconnection and the interactivity of users and content of social media through computer networks. It brings together computing, communication, and content.
Adapted from Merriam-Webster	the merging of distinct technologies, industries, or devices with social media into a unified whole
SCM	the social media convergence is both a process and an outcome of the development, during which social media are superimposing and subjoining, then integrating and merging as well as transforming and shifting, and finally (sometimes) squeezing and replacing traditional media in their role as the general information content carrier towards a significant portion of recipients from the public.

3) SEARCHING AND PROCESSING ARTICLES

The aim is to create an ample database including analytics. Within the process of creating the common project database, there it would probably be reasonable to prepare a total of **four partial & interim databases:**

1. A database of articles that includes all academic sources produced by local authors or published in the respective country (period January 1, 2013 - December 31, 2017);
2. A database of those articles that show the highest scientific or practical relevance (The Best of Best). In principle, this is a selection from a much larger dataset.
3. A database of non-scientific articles published in the country; (period covered January-June 2018, only selected ideas dealing with various aspects of convergence, by local authors/experts, or visitors, sample of sources to be defined locally – e.g. economy weekly, ICT monthlies, local editions of foreign journals (for example, in our case, a local edition of *Forbes* has brought interesting topics). This will serve for deliverable "*Future Research on Convergence and Social Media."*
4. A smaller database of (virtually redundant for you, but useful for the Project) articles that do not fit into 1 and 2: e.g. foreign articles or reports you came across.

Using the key words. The appearance of the key words „social media"or „convergence"in articles is clearly obvious. However, many authors do not necessarily use the key word „convergence", but, instead, they use a synonym. For example, within our linguistic corpus we have found the synonyms: „*remediácia*", (re-mediation), *prelínanie* (intermixing), *prepájanie technológií* (interconnectivity of technologies).

Moreover, in some languages the results are influenced by language flexivity, i. e. difference between the basic form of a phrase (e. g. *sociálne médiá*) and its inflection form (e.g. *sociálnych médií*).

For example, it appears that in a British context, the word "*transmedia*" is being used as a synonym for convergence of social media (and its consequences). Moreover, in some texts "*new media*" seems also to be synonym for social media.

In general, it may be useful to start with searching in a national database of academic articles, and in the database of a national (central) library. We have been able to collect an estimated 80 % of all relevant sources in this way. Our next step, was to contact all the authors with ~~a~~ list of their publications and request to check and update this list, and if possible to navigate us further. Please do not forget to contact smaller research teams such as IT companies or non-academic research institutes.

We appreciate if you share your know-how too.

4) ANALYTICAL SPECIFICATIONS/ CATEGORIES

The research material should be categorised within an Excel table that is divided into the following columns. Please find attached our Excel table.

It is probably not necessary to have all items below included in the Excel table. However you can of course, suggest additional items for inclusion on this list of categories/specifications.

A) NUMBER OF ITEM

B) TITLE OF THE ARTICLE – IN ENGLISH
Please translate the original title into English. However, for the time being and for practical working reasons, it may also be useful to keep the title in the original language especially when you do not have the full text) marked as **B1)**

C) SOURCE: by this we mean academic journal, edited volume, etc

C1) FOUND BY/IN: This may help in identifying which database or search tool was used. Google does not find everything

D) AUTHOR(S): This may help in focusing on the most prolific authors and specialists in the field.

D1) **EMAIL ADDRESSES OF THE AUTHORS**: Please copy/write down and keep email addresses of the authors for further dissemination activities!

E) COUNTRY OF ORIGIN (PLACE OF PUBLICATION): This may help to identify studies/texts published abroad. However, we have noticed that sometimes some universities publish their entire publications abroad in order to claim higher prestige of their intellectual work. This may be reported separately.

F) DATE OF PUBLISHING: (year only). This will help to differentiate between perhaps already outdated sources/findings.

G) FULL TEXT - LINK: Please copy the link for the full text on the web

G1) FULL TEXT - pdf: If it´s possible download the pdf file (full text) and save it in the specific data directory and name it
001 dhfhasdg (title of the article)
002 jsdhfai (title of the article)
…

G2) NOTE: This can help you to mark for example the location of the full text (name of the library) in the event that the full text is not available on-line

H) KEY WORDS IN ENGLISH

We should ignore the key words „social media“ and „convergence“ here as these should be – implicitly at least – obviously present in all selected samples. If an article contains its own list of key words, we would suggest using them. If not, please select/suggest the most suitable ones.

Perhaps we should aim at developing our internal list of abbreviations. For example,

Facebook – FB, Virtual Reality – VR, YouTube – YT, Twitter -TW,... As mentioned, in case of doubt, either use first two or three letters of a particular social media or name it in full.

I) + I1) ABSTRACTS

If there is a well-written abstract in English connected to the article, ideally, this would be just a “copy and paste” job. Unfortunately, this is not always the case. In most cases, there is a superabundancy of junk words from the perspective of this research. Moreover, sometimes the key ideas are missing. Therefore we suggest selecting 1 or 2 key sentences from the abstract and just hyperlink the full abstract at this step. If there is no original abstract available or it is not in English, a creative approach is welcome here.

EXAMPLE (full abstract): *This article deals with the analysis of the scientific and professional, foreign and domestic sources focusing on the new online social media. They are now an integral part of the communication with the target audiences and therefore also the subject of interest of the reflections and considerations of their impact on target audience. Online social media play a significant role in academy field as well as in business. Creating and strengthening relations of the mentioned entities - networking - can ensure the development of the region in which they operate. When using on-line social media for networking of the entities and communicating with specific target groups should be taken into account not only the advantages but also the disadvantages and potential risks of this communication.*

1. Short Abstract in English (relevant to the project)

EXAMPLE (abbreviated version): *The article discusses pros and cons of social media for communication and suggests the basic ways for* ***utilization of social media by universities in communication with industry.***

I1) Short Abstract in Local language (relevant to the project)

- Could be possibly kept in the table, too, for double-checking.

J) + J1) RECOMMENDATIONS/FINDINGS

Some texts include recommendations. These could be available either in the abstract (rarely), or, more often, in the final section of the article or in its conclusions. Please select key points/ideas of the recommendations. If there are no recommendations or findings, leave this column empty (but write “no”, to ensure that this is not just omitted by mistake). However, sometimes it is possible to find a meaningful set of recommendations/findings in an article or to “create” recommendation/findings (which may be scattered throughout various sections of an article) .

J) EXAMPLE: *Steadily pressing FB reaction buttons should not be qualified as criminal offence because the social impact of this act is negligible and it would fail in the test of necessity in a democratic society. Instead, there could be three possible* de lega ferenda *solutions.*

J1): (the same in Local language)

To the cited example it is worth noting that ABSTRACT of the same article was much more vague AND without recommendations. However, there was a hint that there might be some kind of advice/recommendation in the last sentence: *„The presented paper is focused on analysing the issue of the Facebook reaction buttons as a form of hate speech. Pressing these buttons can spread hateful content through Facebook and disseminate extremist ideas. Currently, technologies are so much sophisticated that it is enough to do just one “click” on the computer mouse, touchpad, or display and the content is disseminated. According to the Criminal Code of the Slovak Republic, there it is possible to prosecute the user just for one pressing Facebook reaction button, hence for one “click” with what we disagree on and in the paper* ***we state arguments which support our opinion.***

FOR EXAMPLE, A SHORTER ABSTRACT outlining the same example should be: *The paper is analysing the issue of the Facebook reaction buttons as a form of hate speech.*
(Please note that we made the original sentence more condensed)

K) RELEVANCE

Obviously, this is an important and difficult task to assess objectively with relevance to an item on our list. Therefore, we would suggest using two independent assessors for this task, ideally the best experts in this field. It should be kept in mind that we may work further with this data for some specialised tasks. It is to be decided later on (based on the size of particular sample) whether we will work only with articles of HIGH relevance or also include articles of MEDIUM relevance. In general, we would prefer more HIGHLY relevant samples. For example, we have experimented with (15) pre-selected articles based on their relevance (choosing high and medium importance articles only) for further specialised analyses related to the primary sources used (divided into foreign and domestic) in articles published by our authors. These findings may indicate dominant primary sources used in a particular country (e.g. written mostly in German or in English).

1. **High:** It is directly related to social media and convergence. The findings seem to be innovative and important (practically or scientifically – ie. in a sense of applied or basic research).
   EXAMPLE: Steadily pressing FB reaction buttons should not be qualified as criminal offence because the social impact of this act is negligible and it would fail in the test of necessity in a democratic society. Instead, there could be three possible de lega ferenda solutions.

2. **Medium:** It is directly related to social media and convergence. The findings seem to be less important.
   EXAMPLE: The article discusses pros and cons of social media for communication and suggests the basic ways for utilisation of social media by universities in communication with industry.

3. **Low:** It is only indirectly or marginally related to social media and convergence **and/or** the findings are trivial. This also includes articles that actually *de facto* summarise findings from international sources. Thus, these articles may be seen domestically as highly relevant, but they are actually not relevant internationally (difference between summaries and meta-analysis). This, in turn, as mentioned, requires assessors who have a good command of the topic (state of the art of the research) in this field.

   EXAMPLE: The paper deals with the phenomenon of proliferation of banality in the contemporary massmedia texts, sounds and images. The author´point of departure lies in editorial self - regulation of visualization of these texts, sounds and images considered as a panoptic – synoptic normalization consequence of the massmedia professionals as well as their audience. The article clarifies the metamorphosis of journalistic procedures from the previous ones oriented towards the depth of information sources into the width of information sources required nowadays. Simultaneously, the author uncovers how the interoperation between human reason and imagination inspired by reading, listening to or watching of the massmedia products has been metamorphosed to a mere transmition and absorption of desirable messages.

L) TYPE OF RESEARCH

1. **Basic research**: exploring – researching basic issues with no immediate practical (and monetizable) results as such.
   EXAMPLE: *This contribution has a feature of an analytical study, terminology, theory, concepts and credibility models in the environment of social media. The aim of the study is to synthesize what the*

international experts study, which aspects of credibility have not been sufficiently explored and what should be future direction of applied research.

2. **Applied research**: researching specific aspects of the subject usually with some possible practical knowledge as a result.
   EXAMPLE: *The presented paper is focused on analysing the issue of the Facebook reaction buttons as a form of hate speech.*
   EXAMPLE: *The article discusses pros and cons of social media for communication and suggests the basic ways for utilisation of social media by universities in communication with industry.*
3. **Non scientific**: all other – typically journalistic – articles. This may create some confusion, since we have also a special database of non-scientific articles. We mean here that among allegedly scientific articles you may find articles that actually do not fulfill basic expectations with regard to scientific output.

M) MAIN PURPOSE

We are interested in information about the purpose that the social media analysed served in a particular article. For example, Facebook can serve either for information, or for connections, or for marketing, etc. However, the study deals with use of FB for marketing purpose.

1. **information**
2. **connections**
3. **education**
4. **hobby/entertainment**
5. **marketing**
6. **technology**
7. **…**
8. **no/difficult to determine/other**

N) SECTOR

We have agreed to include the type of sector – some articles deal with e.g. communicating via FB but primary sector is education (i.e. how FB is used for transforming curricula during the policy making process). The main sector where the social media activities take place:

1. **Interpersonal human relations**
2. **Shopping**
3. **Services**
4. **Education and science**
5. **Human health and social activities**
6. **Public administration** and defence; compulsory social security (General public administration activities, Justice and judicial activities, Public order and safety activities etc.)
7. **Information and communication** (publishing, software, television, journalism, telecommunications activities etc.).
8. **Arts, entertainment** and recreation (Libraries, archives, museums etc.)
9. **Sport** (Gambling and betting, Sports activities etc.)
10. **Other**
11. **None**

Here it is possible to use multiple choices, if needed.

O) SOCIAL MEDIA CATEGORIES

Base on our pilot research, we would use ~~just~~ simple individual categories such as (only) e.g. Facebook (FB), Twitter (TW), OR a sample of particular media (e.g. FB, TW, YouTube - YT),
using mutually agreed abbreviations:

1 – in general - if no specific media is mentioned
fb – Facebook
yt– YouTube
in – Instagram
g – Google+
wa – WhatsApp
tw – Twitter
li – LinkedIn
lg – Letsgo

As mentioned, these are just examples – it is not the full list of abbreviations used for social media.

P) FUNDING SECTOR (THAT FUNDED THE RESEARCH)

1. **Public**: more than 50% public financing. By public we mean public universities, the EU and international organizations. For example, if the source of funding is not mentioned, and the author works at the public university, we assume that this is a public sector.
2. **Private**: more than 50% private financing, all private universities and the industry.
3. **Private-public**: any mixture of private and public project financing, as well as funding provided by NGOs and international organizations such as UNESCO.
4. **State**: more than 50% state financing. By this we mean national or regional governmental funding, including state agencies, and state universities (such as the University of Defense).
5. **Other/Not clear**

Please check and consult internally which grant-awarding bodies are public and which state-funded. For example, in Slovakia we have the Grant-Awarding Agency which is under the Ministry of Education and Science. This Grant-Awarding Agency is seen as a state agency, since it is established and funded by a ministry (i. e. the government). On the other hand, there is the Agency for Science and Research, established by the state (by law) that is state-funded, but seen as a public agency. This status is similar to difference between public television/radio and state television/radio, or between a public university (majority of state funded universities but with public status) and a state university (state funded but with state status, e.g. Police Academy, Academy of Defence).

Q) REGULATORY ISSUES

1. **none**
2. **minors (protection of)**
3. **hate speech**
4. **fair competition/image**
5. **marketing**
6. **personal data**
7. **copyright**
8. **libel**
9. **other**

This categorization is perhaps the most important one for further analytical use. When a researcher identifies a new relevant issue, please inform us all by including it here.
Here it is possible to use multiple choices, if needed.

R) STAGE OF RESEARCH

1. **initial stage:** the project (it can be understood as an article) has been approved and is being developed, the time period is usually the first six months
2. **advanced stage:** period between six months from the start and three months before the deadline
3. **final stage:** the results are already available or the project is about to be finished (the last in three months)
4. **other**

Note: We consider for this aspect the full period January 1, 2013 - December 31, 2017. Thus, all above mentioned chronological data should be considered within this time frame. Obviously, this information is meant to present preliminary results or first results of longer research projects. Although, understandably in many cases this will be the final stage.

S) RESEARCH METHODS: We do recommend using the multiple choice options here.

1. **case study:** it is an in depth *study* of a particular situation, subject or country, rather than a sweeping statistical survey. It is a method used to narrow down a very broad field of *research* into one easily and/or in-depth researchable topic. According to its design, the case study research method can be divided into three categories: explanatory, descriptive and exploratory.
2. **qualitative vs.**
3. **quantitative:**
   The main differences between qualitative and quantitative research methods can be summarized in the following points**:**
   The main differences between qualitative and quantitative research methods can be summarized in the following points:
   Firstly, the concepts in quantitative research methods are usually expressed in the forms of variables, while the concepts in qualitative research methods are expressed in motives and generalizations.
   Secondly, quantitative research methods and measures are usually universal, like formulas for finding mean, median and mode for a set of data, whereas, in qualitative research each research is approached individually and individual measures are developed to interpret the primary data taking into account the unique characteristics of the research.
   Thirdly, data in quantitative research appears in the form of numbers and specific measurements and in qualitative research data ~~are rather~~ is commonly in the form of words, images, transcripts, etc.
   Fourthly, research findings in quantitative research can be illustrated in the form of tables, graphs, pie-charts etc., whereas research findings in qualitative studies are usually presented in analysis by using words predominantly.
   The following table presents main differences between qualitative and quantitative research methods:

Characteristic	Quantitative research	Qualitative research
Data representation	Phenomena are described numerically	Phenomena are described in a narrative fashion
Analysis mode	Descriptive and inferential statistics	Identification of major schemes
Scope of inquiry	Specific questions or hypotheses	Broad, thematic concerns
Primary advantage	Large sample, statistical validity, accurately reflects the population	Rich, in-depth, narrative description of sample
Primary disadvantage	Superficial understanding of participants' thoughts and feelings	Small sample, not generalizable to the population at large

4. **meta-analysis:** We understand meta-analysis as a method used to compare and learn from a large group of studies. The benefit of meta-analysis is that it will confirm or disprove reliability using the findings from many studies. Meta-analysis will find what has already been found, which arguments and evidence strongly support the hypothesis and which points are weak. It will also find areas that may be changed or altered to improve future research efforts**.** However, our Pilot research has shown that some articles can create the appearance of being meta-analysis, although, in fact, they are just poor superficial research. In such a case, perhaps category 5 would be better to use.
5. **comparative:** comparison of two and more countries, two and more social media, etc. However, it must be clear that there is a comparative element/intent included.
6. **not clear/combination/other**
   We understand that there are two primary and broad categories: qualitative vs. quantitative. Therefore, we also understand that sometime it may be confusing to choose the most suitable category.

T) PART OF THE RESEARCH PROJECT: e.g. FP7 MEDIADEM,

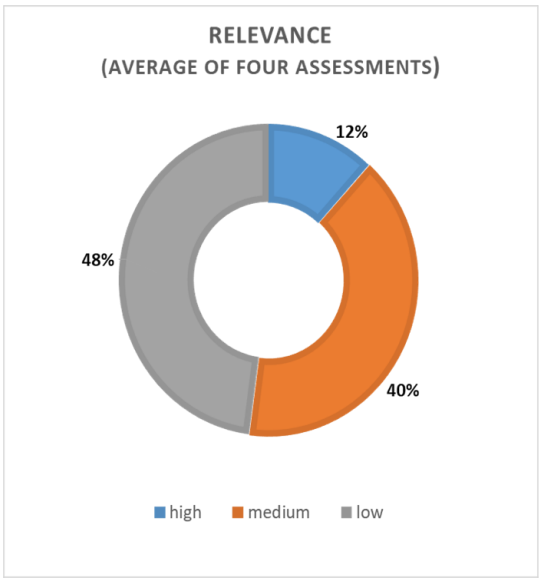
U) INSTITUTION: of an author

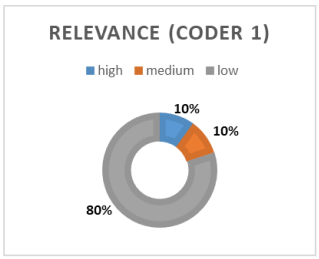
1. **university**
2. **academy/scientific institute**
3. **non-profit research institution**
4. **for profit/private institution/company**
5. **other/not known/**

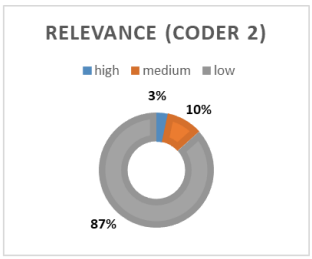
Sources:
https://research-methodology.net/research-methods/
https://www.teachthought.com/technology/10-different-social-media-sites-for-education/
https://www.dreamgrow.com/top-15-most-popular-social-networking-sites/

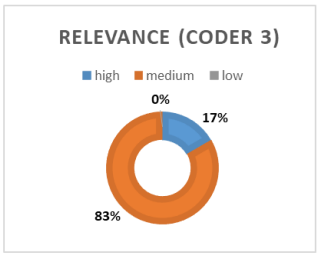
5) A PILOT STUDY

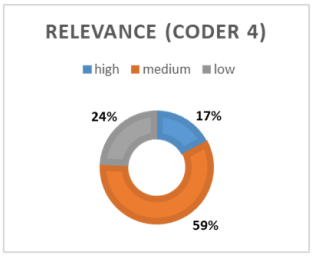
Relevance
(Sample Slovakia 2013-2017)



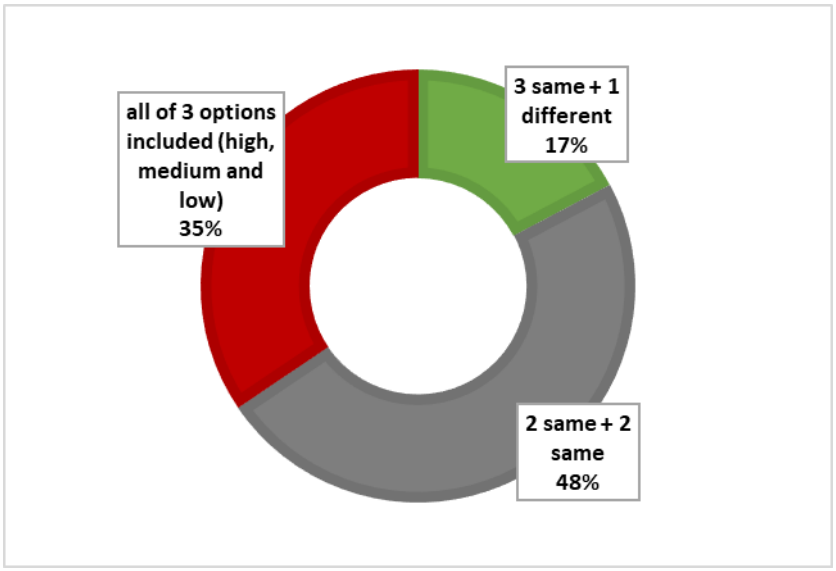






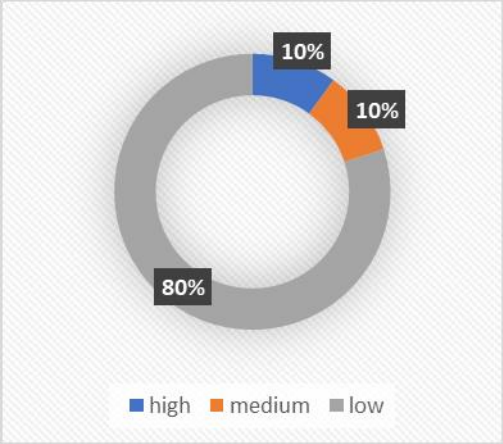


Relevance - Differences
(Sample Slovakia 2013-2017)

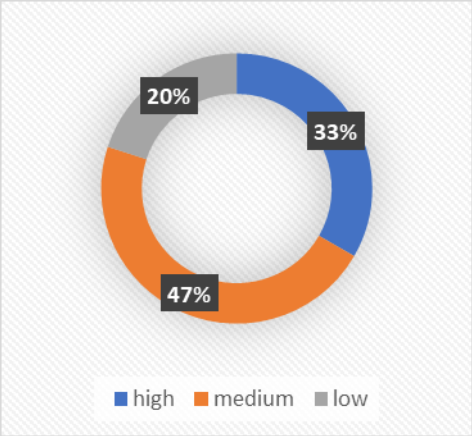


Relevance

Sample Slovakia 30 articles

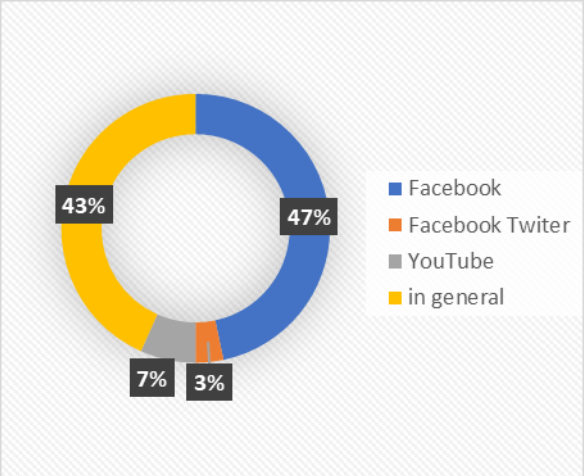


Sample Czech Republic 15 articles

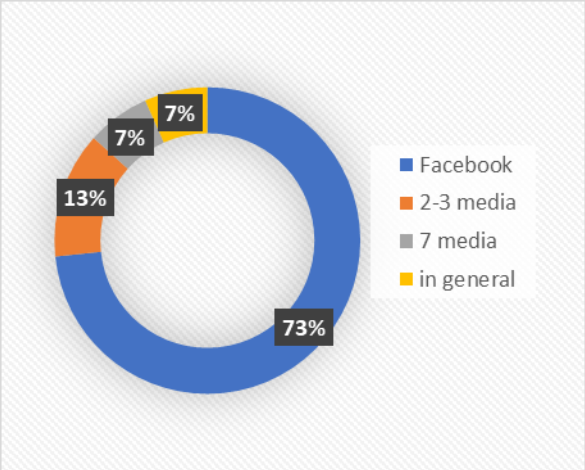


Social media

Sample Slovakia 30 articles

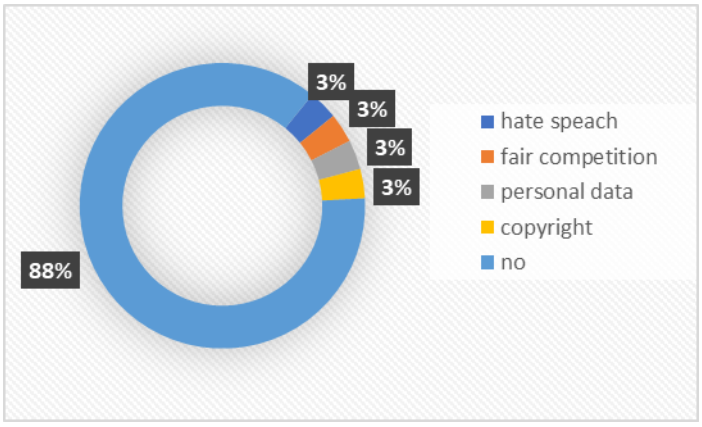


Sample Czech Republic 15 articles

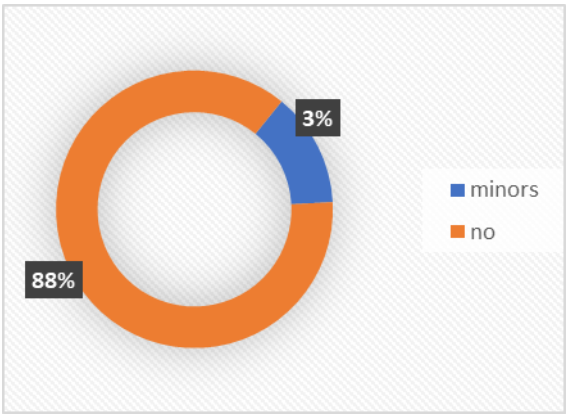


Regulatory issues

Sample Slovakia 30 articles

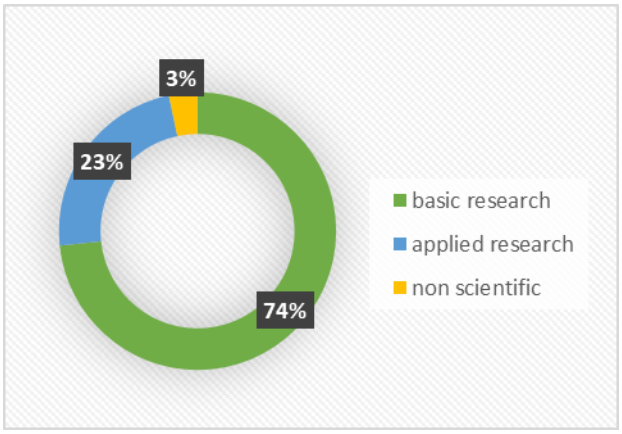


Sample Czech Republic 15 articles

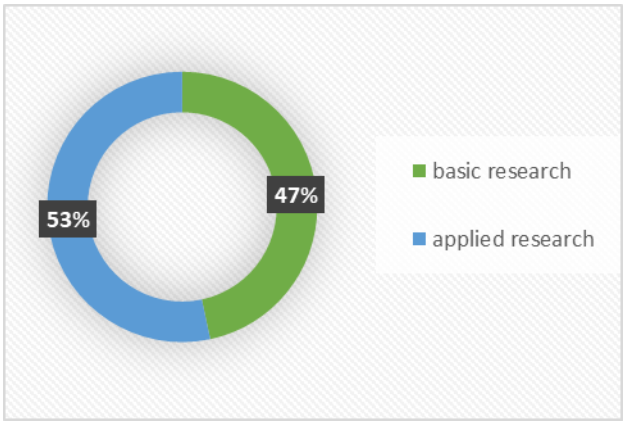


Type of research

Sample Slovakia 30 articles



Sample Czech Republic 15 articles



6) DOMAINS – another divisional criterion of examined texts

The subject of the provided research has some level of originality as to the purpose, aims, viewpoints of the principal topic: social media and convergence. At the beginning, an initial structure of assessment table was constructed with logical divisions sorted by a set of criteria. As the tables become populated with desired material, new views on its landscape emerged However complex the initial division seems to be, there can still be some space for incorporating new approaches.

From a broader point of view that respects the practical findings about the varied nature of the whole literature dealing with social media today, we can highlight six or seven distinct domains, to which we may assign all (?) the publication items. Here they are:

1. MEDIA
2. SOCIAL NETWORKS THEORY
3. POLITICS&SOCIAL ASPECTS
4. PRACTICAL INFORMATIONAL SOURCE
5. EDUCATION&SCIENCE
6. PRODUCTIVE SOCIAL NETWORKING
7. (HUMAN RESOURCES)

The boundaries between the specific domains are not always clear, they can overlap or there can be a discussion about their parameters. This could be solved in some cases by attributing a single item to two domains.

1/ Media

An article belonging to this domain describes and shows social media in their function as media, i. e. not primarily as a communication channel between individual entities or narrowly defined groups, but in the relationship of issuer-to-public. Usually traditional media or the non-social internet media are mentioned, too.

Examples:

Fake news and the digital media. The challenging battle for people´s hearts, minds and illusions (Peter Gross, 2017, Romania)
Here the title is self-explaining; the social (digital) media are converging with the role of media in general, introducing additional challenges.

The influence of new technologies on journalism practices (Rodica-Melinda Șuțu, 2015, Romania)

Content and marketing communication for SMEs in social media (Gáti Mirkó – Csordás Tamás, 2013, Hungary).
This article deals with marketing communication at the level of brand awareness, i. e. less targeted, and compares new and traditional media in this sense.

2/ Social networks theory

Articles in this domain present findings about various characteristics and functions of social media networks that are usually a result of ~~a~~ specifically focused research in this field. The decisive attribute here is the point of view of ~~a~~ the scholar, not that of ~~a~~ the user.

Examples:

The offline geography of an online social network, or the Hungarian empiries of the distance and size role (Ákos Jakobi, Balázs Lengyel, 2014, Hungary)

Usage of Facebook by University Students in Romania and Lithuania: A Comparative Study (Iordache, Pribeanu, Lamanauska, Raguliene, 2015, Romania)

3/ Politics & social aspects

The article classified for this domain presents social media as a tool of political movements and ideologies including “soft” politics displaying social phenomena and findings. Also we can count within this domain research studies focused on specific social issues – when the results describe a social phenomena, not social media itself.

Examples:

Social media as message of student protests (Dániel Bolcsó, 2013, Hungary)

The meeting of the bedroom, the studio and the social media: The popbedroom area of Budapest (Róza Emília Barna, 2014, Hungary)

Social Networking Websites Usage and Life Satisfaction: A Study of Materialist Values Shared by Facebook Users (Valeriu Frunzaru, Mădălina Boțan, 2015, Romania)

4/ Practical informational source

This domain includes articles about possibilities for the user to find and obtain information of various kinds with the help of social media. There are also texts about (technology) methods and how to improve the access to information through SM. This means these articles focus on the user´s side, however, there can be other articles about the same services but dealing with them from the suppliers´ side – those items belong to another domain (the productive social networking).

As for the topics and areas, which the articles in this domain present, there could be a broad range, e. g. information about events, timetables, access to information in emergency situations etc.

Examples:

ROLE OF SOCIAL MEDIA IN DISASTER RELIEF THROUGH THE EXAMPLE OF SANDY HOOK (Bányász Péter, 2013, Hungary)

Urban transport monitoring with social media (Bányász Péter, 2013, Hungary)

The media and communication theories of augmented reality (Szűts Zoltán, 2011, Hungary)

5/ Education & science

Articles dealing with employing social media in educational processes or scientific information networks belong to this domain.
Note: These are quite popular topics in publications and several of them have also features informing other domains, especially Practical informational sources and Productive social networking. However, the use of social media in areas of education and scientific information has some specific features.

Examples:

Social media in education - Facebook case studies (Kárpáti Andrea – Szálas Tímea – Kuttner Ádám, 2012, Hungary)

About the relationship of science and the new media (Tibor Koltay, 2014, Hungary)

6/ Productive social networking

Here articles are presented that show, mostly in practical terms , the possibilities for organizations and suppliers to effectively work with social media and build networks through them in their efforts to seek for the customers or partners for their business or other practical activities.
This domain could be also regarded as the opposite side of the coin “Practical informational source” domain, that focuses on just the opposite – looking for the suppliers of some desired services or items.

Examples:

Fundraising, impulse donation in social media (Jozsef Hubert, 2017, Hungary)

Meeting social media, location services, and mobile platforms through an example of a business venture (István Varga, 2013, Hungary)

Social CRM. The influence of social media on the customer relationship management (Beatrix Tóth, Edit Bányai, 2014, Hungary)

7/ Human resources

This is a more specific domain, possibly could also be a sub-domain of another domain (Practical informational source or Productive social networking). This is mostly about organizations´ seeking information about potential employees on social networks, as well as about the consequences in areas like personal data protection etc.

Examples:
Research Regarding the Social Media Recruitment Tools in Romania (Mihaela Saros-Rogobete, Adrian-Gabriel Sav, 2016, Romania)
Social networks and workers' right to privacy before employment: comparative analysis and comments (Edit Kajtár, Bruno Mestre, 2016, Hungary)

Next chapters of work sheet (in following version) – issues to solve:

How to regard and measure the “convergence” in respect to domains

The relation between domains and original categories

The impact of the amended structure on the research and its formal elements

Supplement 3: AI and Fake News

The comparison of fake news detecting and fact-checking AI based solutions

Abstract: Information disorder is a term that is increasingly being used as an umbrella for the concepts of disinformation, misinformation and malinformation. It proliferated as a novel and useful term to describe the unwanted state of information pollution online, which has sparked an intensive academic and political debates. In the efforts to address this issue, there is an increasing but still weak recognition of the interdependence between information disorder and the advancements in Artificial Intelligence (AI). Moreover, little attention is given to analysing the issue from the comparative perspective. This article is a contribution in that direction: it investigates how AI can help in addressing information disorder stemming in particular from the massive use of social media. For that purpose, the study compares the most developed and publicly available fake-news detecting and fact-checking AI based solutions (intelligent machines).The comparison is based on two key parameters: accuracy and comprehensiveness.

Key Words: fake news, artificial intelligence, fact-checking, comparison, testing

Introduction

There are about 50 fake news detecting and fact-checking organisations in Europe and double that number in other parts of the world (Funke 2018). Fake news detecting, fact-checking and debunking organisations and initiatives rely almost exclusively on manual tracking fake news systems (information disorder), and only rarely employ semi-automated tracking systems (Pavleska, Školkay, Zankova, Ribeiro, Bechmann 2018). This is costly, inefficient, error-prone and slow process of making sense of information disorder (includes deliberately and accidentally – unintentionally misleading information, unexpected offensive results, hoaxes, and conspiracy theories) in both online and offline environments. Measured by volume, only about 0.25 percent of total content delivered by Google contains offensive or clearly misleading content, but still, this fraction is considered to be potentially damaging for the society.[1] A possible solution appears to be the use of AI powered news and social discourse analysis for such purpose. Obviously, the AI can be used for the same (negative) purpose as a digital weapon in cyber wars using bots. Nonetheless, this article aims at exploring the most recent advances in this strategic research focused only on the positive side of utilisation of AI tools in order to provide up-to-date knowledge and the first comparative assessment of state-of-the-art of AI solutions aiming to detect and debunk fake news and fact-checking. Our comparison does not claim to be comprehensive but

[1] https://blog.google/products/search/our-latest-quality-improvements-search/

rather an introduction into the debate. In spite of some scepticism about the AI potential (as we discuss below), including some contradictory gloomy forecasting of the AI negative impact (e.g. Shotter 1997, perhaps the most well-known Hawkins, see e.g. Cellan-Jones, 2014), the exploration of the AI seems to be highly relevant in the current scientific discourse. For example, 40% of calls (100 of out of 250) for conferences published on the easychair portal in March 2018 included among their key words the AI. Yet only about 10 of them actually tackled fake news and/or social media as a major topic and, moreover, there is not a single paper that would tackle the AI role within information disorder in general and the effectiveness of the AI tools in comparative angle in particular. Although one can agree with Chinnappa (2017) and Craft, Ashley and Maks (2017) arguments that the best way to combat the problem of fake news is supporting the development and identification of high-quality online content, promoting media literacy, restricting the flow of money to deliberately misleading content and ensuring that reporting and feedback tools are as effective as they can be, nevertheless, the AI contribution within this context can and should be explored more in a detail. There is an important contribution to this debate but almost exclusively from experts within AI – i. e. technology – field (e.g. Vlachos and Riedel 2016; Popat, Mukherjee, Strötgen and Weikum, 2016; Hassan, Li and Tremayne 2015; Zhao, Resnick and Mei 2015). There also is a paper by Özgöbek and Gullain (2017) in which they offer a brief state of the art to the automatic detection of fake news. However, they do not present any AI tools. Therefore, as highlighted by Babakar and Moy (2016,19): «There is an urgent need for a thorough literature review of work on automated checking, including work outside academia.»

First, we introduce the concept and role of the AI within the information disorder context, then we present general strategies used or suggested for fighting information disorder as well as methodologies for the assessment of AI based detecting and debunking tools. In our key part, we present the first comparison of the more developed and publicly accessible AI machine-learning tools. This comparison is based on social science approach and thus limited by the availability of sources, reports and technical pilot testing studies. Nevertheless, such first-ever done study should be of interest to social scientists and policy makers.

AI and Information Disorder

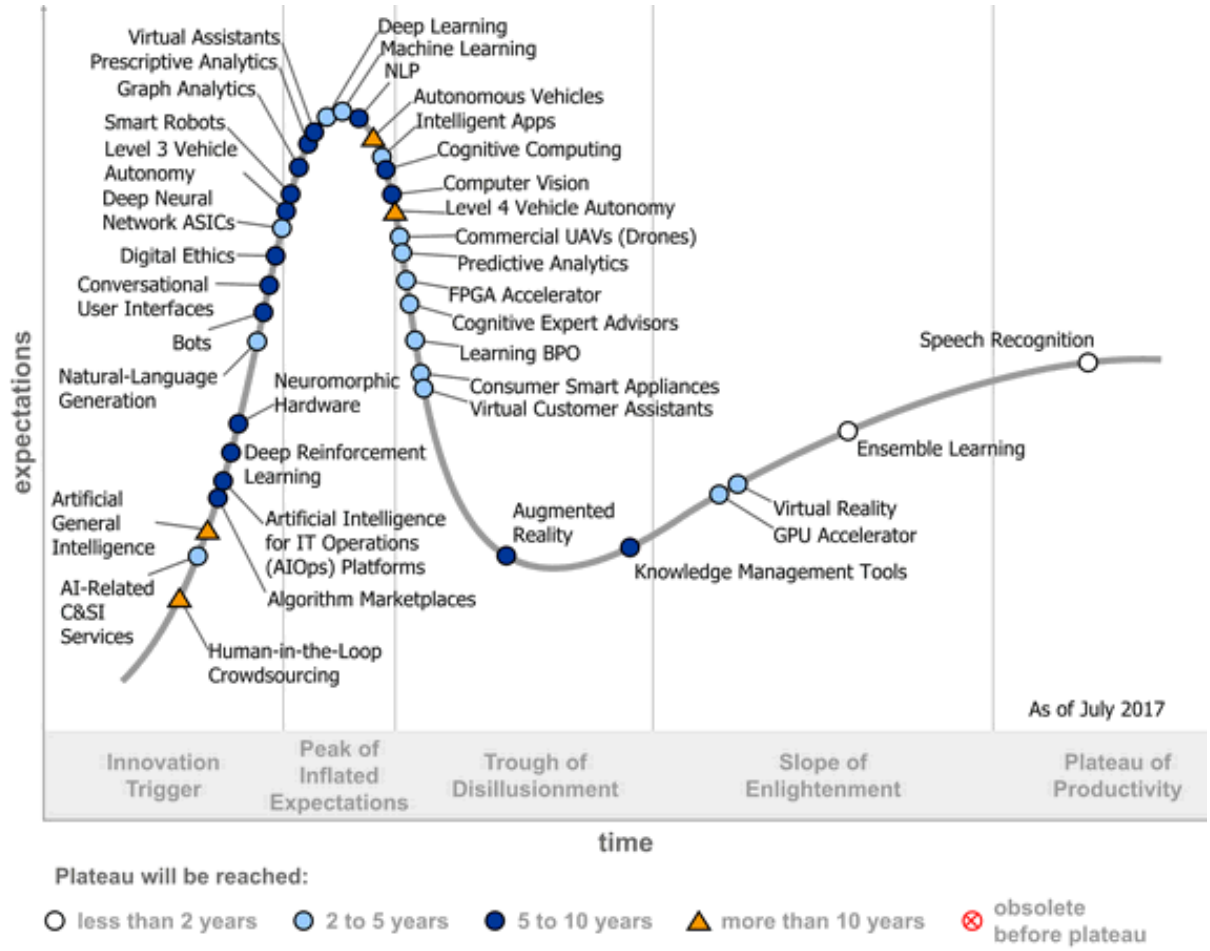
Artificial Intelligence (AI) is the name given to a computer systems that attempts to imitate mechanisms of the human intelligence and (in advanced versions) to process human-like learning. However, it is difficult to find universally satisfying definition for AI, because the definition of intelligence itself conjures fundamental questions of consciousness and human beings that have not yet been resolved by natural and social sciences (Wood 2016). Even the Association for the Advancement of Artifical Intelligence (AAAI) defines the AI quite broadly as: «the scientific understanding of the mechanisms underlying thought and intelligent behaviour and their embodiment in machines.»

AI is typically divided into two groups — strong (broad) AI and weak (narrow) AI. This is the most often used categorisation. Sometimes, one can find division into three broad categories of AI: narrow AI, Artificial General Intelligence (AGI) – (hypothetical) and Superintelligence – (hypothetical) (e.g. Carriço 2018).

The AI is based on designing of intelligent machines to be capable of acting and thinking very smart. It is believed that AI has the ability to transform various aspects of people's lives (Joshi 2017). On the other side,

some argue (e.g. Orlowski 2017) that while the AI is not entirely useless, it is vastly overhyped. Others argue that «it seems self-evident that the growing capabilities of AI are leading to an increased potential for impact on human society» (Russell, Dewey and Tegmark 2015, 112). Thus, clearly, there is a huge expert gap in assessment of the AI past, current and future potential. Currently, the AI is not able to evaluate more complicated and normative statements and cannot disentangle the simplest ambiguities in sentences, e.g. those which cannot be quantified. Identifying manipulated (fake) photos and videos is even more challenging. The chart 1 shows various AI applications and where they are in the current research and development cycle (as of July 2017).

Chart 1: Phases of AI Development



These great innovations have been favored by the greater availability of data that have made possible to train computers but also by the advances in cloud computing and new machine learning techniques like deep learning (Joshi 2017).

The utilization of AI is likely to experience further social and political challenges (Brundage *et al* 2018). So far, there is a large inadequate power of computation since they require a high level of calculations and hence, a lot of power is used for processing. There is low number of organizations that are ready to invest in the growth and development of artificial intelligence skills (Marr 2017). But how much can AI be used for detecting and fighting

fake news and hoaxes, or various types of disinformation currently? As Babakar and Moy (2016:1) notice, there are many automated fact checking projects worldwide, but they are fragmented and not coordinated.

Strategies for Fact-checking, Detecting and Debunking Fake News with the Help of AI

Till recent years most of the work on identifying fake news was made manually without the use of automated tools (eg. politifact http://www.politifact.com). Recently, the natural language processing (NLP) scientific community turned its interest on creating automatic tools to identify fake news. These tools are based on creating mathematical models which will classify a script as fake or not, or they will classify a script by, some proposed, levels of truthfulness (how true or fake an event in news is). One of the most important goals of these models, is to not train them only on word occurrences, but also, to train them on understanding the semantic relations of words (context) the same or close to humans understanding.

For developing an AI methodology based on mathematical modeling, we need to create a matrix (feature space) in which each column will be a chosen feature and each row is a record. For classifying news as fake or not we need to have features Based on word occurrences and word relations (both semantic and syntactic), but also features based on how humans check the facts. So, first we need to study human behavior in the process of manual detection of fake news. Humans check if the facts support the story, facts such as persons, places or items of interest, like who was involved, where the event took place, etc. All these facts can be used as features in the prementioned matrix.

These mathematical models need the feature space in order to be trained. The more the records in the feature space the better the mathematical model will be, that means it will be really close to human accuracy. A feature space is created mostly by crowdsourcing techniques. First the scientists will create the first instance of the feature space, which will contain enough records, in order to be able to train a mathematical model to pass some baselines, such as majority baseline or random baseline and come close to human performance. Nevertheless, the training of the model is not ending here. As time passes by, the feature space of the models needs to be updated and more recent records to be added. This can be achieved by engaging humans in this process. First, the human flags a news or article as fake. Then a program will do feature extraction, to extract the needed data to fill the feature of each new record in the feature space. In this process, the human/user, first, flags a news or article as a fake and then a new record in the feature space is created. After that, the mathematical model is re-trained, to gain more information on how to accurately identify fake news.

As Ghafourifar (2017) reminds, if we want to build a powerful, intelligent AI-based tool that can detect fake news, we will also need to overcome our own biases, we will have to exercise skepticism about what we read, share and write on the social media platforms and on the internet. The advantage of the machines is that they are able to analyze large volumes of content throughout, unlike human being.

For a more AI specific approaches (e.g. stylometric, semi-supervised learning and hybrid convolutional neural network see e.g. Wang 2017).

In the meantime, reference approaches and, in a slightly different domain, contextual approaches seem to be closest to delivering real products for fact-checkers (Babakar and Moy 2016, 18-19).

Comparison of AI machines tackling information disorder

In general, for the use and test of any AI machine systems one needs to understand what kind of proper data and what proper amount of data required to train an AI solution is necesary. When determining the track record of the product one needs to look for proof of use, and preferably case studies (Faggella 2018). For example, the **Fake News Challenge** 2017 evaluation was based on a weighted, two-level scoring system.[2] We have followed this methodological advise. In addition to presenting summaries of available case studies (pilot testing), in this chapter we present review and definition of possible indictors/metrics and criteria for indicators/metric-choice. This was necessary due to lack of case-studies for all identified AI solutions as well as it may contribute to additional or alternative analytical assessment angle.

On the basis of this literature review we developed indicators for the chosen metric (comprehensiveness) in the context of information disorder (or fake news). Thus, we use both meta-analytical approach, ie systematic review that summarizes the body of research-based evidence on a specific research question (if there are available results of pilot testing) as well as we developed out own set of indicators based on defining unique features (functionalities) of each AI solution. In particular, our eligibility criteria for including a case (AI-driven software based solutions) into our sample include all AI-based solutions that are publicly available in English and other European languages and are at least in testing phase. During the final considerations, altogether 23 disinformation-fighting and fact-checking projects were closely scrutinized from which nine resulted as relevant for preparing systemic calculations (Table 1). In order to illustrate and further specify this certainly challenging task, we mention key strengths and weaknesses of each AI based software solutions at a certain point of development.

[2] http://www.fakenewschallenge.org/

Table 1: Fake News Detecting and Fact-checking AI Tools

	Name of the solution/Vendor/ Reference	Objective of the system/solution	User (target) group	Technology and Methodology employed	AI methods employed	Strengths/ Weaknesses
1	**ClaimBuster: The First-ever End-to-end Fact-checking System** Team of 13 scholars from Universities of Mississippi and Texas http://idir-server2.uta.edu/claimbuster/ http://www.vldb.org/pvldb/vol10/p1945-li.pdf	Unveiling fake news and fact-checking claims published in media. „The challenge is that the human fact-checkers cannot keep up with the amount of misinformation and the speed at which it spreads. This creates an opportunity for automated fact-checking systems“.	General public, journalists, scholars	End-to-end system that uses machine learning, natural language processing, and database query techniques to aid in the process of fact-checking. It monitors political discourses (e.g., interviews, speeches and debates), social media/platforms, and news to identify factual claims, detect matches with a curated repository of fact-checks from professionals. It's made up of work from human fact-checkers at places including PolitiFact and The Washington Post. (The 2016 U.S. presidential election debates were used for testing, too.) The system quantifies for the claims the probability of being false in range 0 – 1.	machine learning, natural language processing, database query techniques	ClaimBuster can quickly extract and order sentences in ways that will aid in the identification of important factual claims. Discrepancies between human checkers and the machine are still considerable. The algorithm shows some specific shortfalls, acoording to a review[3]: - Some bold claims can be neglected if a clear subject is missing in the sentence; - Does not weigh more-important words over nonspecific words – that leads to mixing of topics in some extent.
2	**Automated Fact-Checking for Real-Time Validation of Emerging Claims on the Web** AIPHES Research Group Darmstadt http://www.k4all.org/wp-cotent/uploads/2017/09/WPOC2017_paper_6.pdf	Fact-checking and validation of news on the web at large in real time	Both casual and professional consumers of web news	Methods for evidence extraction, stance classification, and claim validation. The machine learning methods are trained on a corpus, which was constructed by crawling the snopes.com website. For stance detection, a feature-based multilayer perceptron was used (one of the best performing models in the Fake News Challenge 2017). For the claim validation, different LSTM network structures have been applied.	machine learning methods, Long short-term memory (LSTM/ BiLSTM) Support vector machines (SVM)	A very clear objective and a bold build-up of a complex system for automated fact-checking by using and testing promising AI methods. On the other side, as the validation process is very challenging, the objective of the authors is not to develop a fully automated system, but „a system, which is able to assist a fact-checker in the valida-tion process in order to speed up the procedure rather than taking over the job entirely.“ Still, the development of the system is currently in progress (2017).

[3] Review: Brooke Borel at Popula Science: Can AI solve the internet's fake news problem? A fact-checker investigates, https://www.popsci.com/can-artificial-intelligence-solve-internets-fake-news-problem

	Name of the solution/Vendor/ Reference	Objective of the system/solution	User (target) group	Technology and Methodology employed	AI methods employed	Strengths/ Weaknesses
3	**Fully Automated Fact Checking System (Using Ext. Sources)** Sofia University Qatar Computing Research Institute, HBKU https://www.researchgate.net/publication/306260513_In_Search_of_Credible_News	Automatically distinguishing false rumors from factually true claims.	online users researchers journalists	The framework of the system uses a deep neural network with LSTM text encoding to combine semantic kernels with task-specific embeddings that encode a claim together with pieces of potentially relevant text fragments from the Web, taking the source reliability into account. The system works fully automatically. It does not use any heavy feature engineering and can be easily used in combination with task-specific approaches as well, as a core subsystem. It combines the representational strength of recurrent neural networks with kernel-based classification.	Neural networks LSTM SVM Natural language processing	The combination of the representational power of neural networks with the classification of kernel-based methods has proven to be crucial for making balanced predictions and obtaining good results. Overall, the strong performance of the model across two different fact checking tasks confirms its generality and potential applicability for different domains and for different fact-checking task formulations. The evaluation results show good performance on two different tasks and datasets: (i) rumor detection and (ii) fact checking of the answers to a question in community question answering forums. Still, at the moment the method is „lightweight“ in terms of features and can be very efficient because it shows good performance by only using the snippets provided by the search engines.
4	**BaitBuster: Destined to Save You Some Clicks** Team of 3 scholars from Universities of Mississippi and Oklahoma https://www.researchgate.net/publication/320288079_BaitBuster_Destined_to_Save_You_Some_Clicks	Automated clickbait detection	General (readers´) public, scholars	System adopts deep learning techniques, not requiring feature engineering. Distributed subword embeddings transform words into 300 dimensional embeddings that are used to map sentences into vectors over which a softmax function is applied as a classifier. The solution provides explanations of why a headline is a clickbait. Part of it is the social bot that regularly publishes automatically generated report about contemporary clickbait articles. The objective of this bot is to fight against the rising number of malicious bots which breathe on clickbait, listicle and fake contents.	machine deep learning	Authors: BaitBuster uniquely provides deep learning powered classification and supplements it with explanation and summary by leveraging the headline-body relation. The classification model outperforms existing methods in terms of accuracy.

	Name of the solution/Vendor/ Reference	Objective of the system/solution	User (target) group	Technology and Methodology employed	AI methods employed	Strengths/ Weaknesses
5	**DiversiNews & iDiversiNews:** Surfacing Diversity in Online News https://www.researchgate.net/publication/292501422_DiversiNews_Surfacing_Diversity_in_Online_News	To help readers orientate themselves on the scene of various, often contradicted claims/opinions about topics published on internet.	Both casual and professional consumers of web news	The software system collects news articles by crawling the Internet, groups them into stories (that is, clusters of articles reporting on the same event or issue), and presents them through a novel user interface that helps readers discover contrasting perspectives on the news. The central screen of the application, focusing on a single story, presents an overview of the contributing articles: what aspects of the story they emphasize, where in the world they were written and whether they view the story in a positive or negative light. The user can reorder the articles based on any combination of the modalities (i.e. subtopic or aspect, geography, sentiment) to surface a specific point of view. The summary also changes to reflect the new focus of interest.	Natural language processing	Acoording to a review[4]: Delivers value to the user who needs no special external dependencies or assumptions; the review cites „the extremely useful feedback... collected from the raters". On a conceptual level, users can find that making diverse news more accessible is important; on a practical level, they appreciate the summary-based interface and being in control of the criteria by which the news are organized and presented. The implemented summary-centric approach is very appealing for users, as it reduces information overhead while making it possible to grasp different opinions by reading just a few sentences offered via the interface. However, the carried-out evaluation showed rather low relatedness assessment of the generated summaries, **t**hat were caused partly probably by subjective factors.
6	**FakeRank** (AdVerif.ai) adverifai.com	Verification of advertisements Fighting spam, malware and inappropriate content	• Advertisers • publishers • advertising agencies	FakeRank is like PageRank for Fake News detection, only that instead of links between web pages, the network consists of facts and supporting evidence. It leverages knowledge from the Web with Deep Learning and Natural Language Processing techniques to understand the meaning of a news story and verify that it is supported by facts. Uses a spectrum of AI tools – from machine vision for image manipulation detection to natural language processing for psycho-linguistic feature analysis, and data pipelines for deep learning.	Natural Language Processing machine vision	Strength – propitiatory data and methods pertaining to deep learning and natural language processing. It's designed for fake news detection, rather than as a fact checking tool. Lacks the ability to assess the accuracy of purported facts within article (does not have a database of common facts). *(from the review: David Cox at NBC News)*[5]

[4] Review: Daniele Pighin, Enrique Alfonseca, Felix Leif Keppmann, Mitja Trampus: Evaluation of the DiversiNews diversified news service (Technical report); July 2014 at https://arxiv.org/ftp/arxiv/papers/1407/1407.4454.pdf

[5] Review: David Cox at NBC News: https://www.nbcnews.com/mach/science/fake-news-still-problem-ai-solution-ncna848276

7	**FiB** (student project at hackathon) https://devpost.com/software/fib http://projectfib.azurewebsites.net/	verifying the authenticity of posts on Facebook	Facebook users	The Chrome-extension system goes through a Facebook feed in real time as the user browses it and verifies the authenticity of posts including status updates, images and links. The backend AI checks the facts using image recognition, keyword extraction, and source verification. That includes a twitter search to verify screenshots. The posts are visually tagged directly on the open FB page. The chatbot inside the system checks every new item.	Backend AI – not precisely specified (Natural Language Processing)	The system has resolved a very actual challenge of verifying claims in the Facebook feed in real time. It is doing it by the extension of functionality of a standard search software. It is designed to recognize and check both text and images and to examine external links, too. System is still narrowly focused on Facebook environment. It is a result of a one-shot quick work of a student team at a hackathon in 2016 and it is not visibly evolving from that time. There is a question of accordance with Facebook rules and technology about functional and visual intervention into the composition of posts and pages.
8	**FightHoax: AI-Powered News Analysis** FightHoax company http://fighthoax.com https://medium.com/fighthoax	To empower news analysis and data journalism with Artificial Intelligence and Big Data methods	Journalists, founders of news, social and data startups, tech-appreciating people	Using the power of IBM Watson to enhance every news article with Natural Language Understanding technologies. Using Google as a "database" so FightHoax evolves as the news story evolves. Scanning the world's news sources and blogs like if it were a database. Many NLP techniques are being in order to assess whether a news article contains legit and trusted information. Algorithm understands the content of each news article like humans do, then, it performs logical steps that human fact-checkers perform by doing comparisons. In addition, the algorithm analyzes the language used, the author of the article and other factors to calculate the outcome.	Natural Language Processing text-mining sentiment mining	It understands different aspects about the article like the topic, the sentiment of each sentence, taxonomy, also tiny parts of speech. It can provide information on the source of the article, background of the author. It can decide if the article is an opinion article, a clickbait article, includes propaganda or hate speech. It does not evaluate the trustworthiness of an opinion article. During an independent test, FightHoax overall performed with decent accuracy, especially in true positive range, but experienced several inconsistencies in identifying some of fresh news.[6]
9	Search Quality Rater - Helping the search algorithms eliminate the misleading content By Google https://blog.google/products/search/our-latest-quality-improvements-search/	Providing users with access to reliable sources available, i.e. identify such sources and prevent the spread of misleading content.	General users	Developing changes to Search involves a process of experimentation that includes human evaluators. Recent updates improved system´s ability to flag misleading, offensive and unsupported conspiracy content. That began to help algorithms in demoting such low-quality content.		A practically implemented and ever improving system aimed to maximum effectiveness in an immense digital environment. The automated part of the Google quality rater system is still leaning in a substantial way on the human element – evaluating and data supervising by humans.

[6] Review: Demetrios Pogkas at GitHub: https://github.com/demetriospogkas/FightHoax-Artificial-Intelligence-Fact-Checking-Tests

Furthemore, we identified two key indicators for assessing usefulness of AI-based solutions in fighting information disorder. These are seen as complementary rather than mutually exclusive criteria, as we explain further.

First, it is **accuracy**. By accuracy we mean how precise is an AI solution in detecting and analysing/identifying fake news and hoaxes. The generally accepted principle here is based on the elementary recognition test, numerical results of which distribute themselves into four groups: true positive (tp), false positive (fp), true negative (tn) and false negative (fn). Then we can calculate the parameters: precision, recall, F1 (f-score) and accuracy itself as follows:

$$\text{Precision} = \frac{tp}{tp + fp}$$

$$\text{Recall} = \frac{tp}{tp + fn}$$

$$F1 = \frac{tp}{tp + \frac{1}{2}(fp + fn)}$$

$$\text{Accuracy} = \frac{tp + tn}{tp + tn + fp + fn}$$

For some of the examined AI systems, the creators publish numerical values of some of the abovementioned parameters related to accuracy. In some cases, the reviewers did so. However, there is no unified view on this question, i. e. which of the parameters would describe the abilities of a respective system at best and what methodology should be applied. Moreover, in the given phase and conditions, there could appear doubts about objectivity of the accuracy measurements in some cases. Several systems are still in development aiming for improving the recognition reliability. It was not the primary intention of the researchers, minutely to measure “physical” performance of the systems but rather to assess their design and elaboration potential.

Those authors of AI systems who released the accuracy-related data, have indicated the figure of the accuracy rather high – between 89 to 98.3 %. They were. FightHoax (89%), FakeRank (90%) and BaitBuster (98.3%). Creators of ClaimBuster put the parameters precision and recall both between 74 – 79%. The AIPHES research group indicates the F1 score at 55% for its system. It also cites the evaluation metrics of Fake News Challenge at 82.7%. There could be a topic issue for future research projects there to do an attempt to find and apply a suitable universal metrics for to test, measure and fairly compare the achieved performance of the accessible

fake news detecting AI systems.

Second, it is **comprehensiveness.** By comprehensiveness we mean how complex is offered AI solution, ie how broadly it covers various aspects of the problem with its functionalities. While accuracy can be very high when focused at a narrow sample, comprehensiveness can be very low. Thus, it is necessary to combine both accuracy and comprehensiveness. Yet there is a methodological challenge here. The narrower the scope, the more likely the AI fact-checking project is to provide practical tools for factcheckers. The more ambitious the scope, the closer it is likely to be to pure research (Babakar and Moy 2016, 21).

While considering this caveat, we still think that our overview may be useful. Comprehensiveness is assessed independently by both the authors of this study and three external assessors, based on available description of AI solution.

For the purpose of this research we have decomposed the term «comprehensiveness» with the help of identifying, designating and restructuring a set of components that allow quantifying its «volume» as it is achieved by the respective AI systems. There were selected altogether 20 basic-level categories describing various features, qualities and functionalities of the examined systems. The categories were in the first step assessed and rated separately, after that the results were aggregated according to three main indicators (evaluation pillars, we could say) and then further numerically processed at the indicators level up to calculation of the final numeric value. At first two steps, the values of both «elementary» categories and the pre-composed indicators were weighed by chosen proportions. There is an element of subjectivity in setting the weight parameters that can be discussed in the future. However, authors in creating the weight structure respected the logic of the very topic and research objectives. The abovementioned three pillars are as follows:

A/ recognition of the VERACITY (with the weight 70%);
B/ detection of the MANIPULATION OF FACTS (20%);
C/ Extra Added value/useful special functionality of the system (10%).

The contributing categories were weighed inside respective indicators at various levels from 5% to 70%. The pattern of the evaluation together with assigned category weights can be seen in Table 2, where the example of the ClaimBuster system was exploited.

Table 2: Indicators and partial categories of comprehensiveness: Assessments by evaluators

(ClaimBuster example)

	Category/summary	indicator weight		Assessments of evaluators					Σ (pts)	composed	Σ (%)
	Evaluator			E1	E2	E3	E4	E5			
	Evaluators´ weight			*30*	*20*	*20*	*15*	*15*			
Indicator A – recognition of the VERACITY	**Provides algorithmic and computational tools to assist lay people and/or professionals in checking and vetting claims**	**60**	assessment	Yes		Yes	Yes	Yes			
			points	30		20	15	15	80	48	
	Able to analyze content on internet and social media newsfeeds	**10**	assessment	Yes		Yes	Yes	Yes			
			points	30		20	15	15	80	8	
	Monitor (live) discourses on social media	**10**	assessment	Yes			Yes	Yes			
			points	30			15	15	60	6	
	Able to analyze content on SM in general	**10**	assessment	Yes		Yes		Yes			
			points	30		20		15	65	6.5	
	Detecting manipulated content or context of images	**5**	assessment				Yes				
			points				15		15	1.5	
	Able to analyze audiovisual content	**5**	assessment			Yes	Yes				
			points			20	15		35	3.5	
	Σ for indicator A (points, %)		(weight 70%)							73.5	**51.45**
Indicator B – detection of the manipulation of facts	**Decides whether language of the article promotes propaganda or there is an intention to influence opinion**	**20**	assessment		Yes						
			points		20				20	4	
	Suggests that headlines aim to entice readers to click (clickbait) = detecting false connection - the story does not support the headline	**70**	assessment					?			
			points					7.5	7.5	5.25	
	Detects patterns associated with spam and inappropriate content	**10**	assessment		Yes		Yes	Yes			
			points		20		15	15	50	5	
	Σ for indicator B (points, %)		(weight 20%)							14.25	**2.85**

Indicator C – extra added value/ special functionalities	**Understands different aspects about the article like topic, sentiment, taxonomy, entities**	**20**	assessment			Yes	Yes	Yes			
			points			20	15	15	50	10	
	Indicates whether the article is an opinion article	**10**	assessment		?						
			points		10				10	1	
	Reasons about the very quality of the article	**10**	assessment				?	Yes			
			points				7.5	15	22.5	2.25	
	Offers information about author's past activities	**10**	assessment								
			points								
	Provides links to articles on the same topic from different sources (and political views)	**10**	assessment				Yes				
			points				15		15	1.5	
	Is able to analyze sources of the article	**10**	assessment		Yes	Yes	Yes	Yes			
			points		20	20	15	15	70	7	
	Detects disguising impersonation of sources	**10**	assessment				Yes	Yes			
			points				15	15	30	3	
	Delivers matches instantly to the audience	**10**	assessment	Yes		Yes	?	Yes			
			points	30		20	7.5	15	72.5	7.25	
	Automatically translates claims if not found in original language	**10**	assessment	Yes			Yes	Yes			
			points	30			15	15	60	6	
	Relies on results of work of "manual" fact-checking entities *(informational)*	0	assessment					Yes			
			points					15	15	-	
	Includes knowledge bases/repositories *(informational)*	0	assessment			Yes	Yes	Yes			
			points			20	15	15	50	-	
	Σ for indicator C (points, %)		(weight 10%)							38	**3.8**
	Σ for the system A+B+C (points)										**58.1**

The table is composed on assessments as stated by five evaluators within a simple range Yes – Questionable – No. Only evaluations «Yes» and «?» are shown. The votes of the evaluators are weighted, too, as they are at differently disposed from the point of view of the research topics. For a «Yes» answer there is a full points rating, for the question mark just a half. The totals for the A, B and C indicator are weighted, too, and the sum of the three percentage rates creates the overall rating in %. The table composition secures that the resulting total (the last number on the right down) cannot exceed 100.

The evaluators had to examine categories of the systems features by descriptions published and given by their creators, as well as reviewers. This does not offer quite sufficient possibilities as for rating the practical performance of every system, but it rather delivers an informed view on the functionality in terms of basic features, counting the ambitions for the future, too. Alas, some of the projects seem to be relatively short-lived or halted at the moment; however, they were chosen for calculating the rating in the same way as the

others, as they are noticeable in relation to the research objectives. There was also one system with a very low availability of information and data – the Google´s Search Quality Rater´s extension to the fields of the Artificial Intelligence as well as fake news detection. It is reasonable to suppose that the company is employing part of its big capacities in this direction, notably if the Google section of AI is known to be very strong and active. However, lack of data and information about the outcomes leaves to the evaluators of the clandestine professional system little space for optimistic ratings.

Table 3: Assessment of fake news detecting and fact-checking AI tools in terms of the comprehensiveness
(according to the resulting values in %)

	System	Veracity evaluation – > Fake news detection		Detection of manipulation of facts		Useful extra functionalities		Σ for a system
		= Indicator A		= Indicator B		= Indicator C		
	Comprehen-siveness	(weight 70%)		(weight 20%)		(weight 10%)		
	High	resultant	weighted	resultant	weighted	resultant	weighted	
1	**AIPHES**	73.5	51.45%	26.25	5.25%	41.25	4.125%	**60.825%**
2	**Sofia - Qatar**	75.5	52.85%	18	3.6%	39.25	3.925%	**60.375%**
3	**ClaimBuster**	73.5	51.45%	14.25	2.85%	38	3.8%	**58.1%**
	Medium							
4	**DiversiNews**	64.875	45.412%	12.75	2.55%	62.25	6.225%	**54.187%**
5	**BaitBuster**	45,25	31.675%	76	15.2%	44	4.4%	**51.275%**
6	**FiB**	55.375	38.762%	34.25	6.85%	34.5	3.45%	**49.062%**
7	**FightHoax**	35	24.5 %	52.25	10.45%	52.5	5.25%	**44.662%**
8	**FakeRank**	39.25	27,47%	69	13.8%	29.25	2,925%	**44.2%**
	Low							
9	**Search Qual. Rater**	20.75	14.525%	39.75	7.95%	30.75	3.075%	**25.55%**

In the end, there is an analogical table as the Table 2 for every examined system. The final results, together with particular results for indicators A, B and C, are shown in the Table 3. The nine systems are sorted according to the calculated score. However, numeric differences between some of them are tiny and we should have to take into the account also the subjective features of the methodological approach, as suggested before, too. The grading taxology of existing AI systems and differentiating into «High», «Medium» and «Low» levels for the comprehensiveness would be logically of some subjective uncertainty, too. An overall view on the evaluation results shows a grouping of three items around the mark 60, then a field of achievers between around 44 and 54, and then as the last one, the mentioned Google´s system, probably disposing by some unrevealed qualities, too. So taking into account these empirical valuations, we can for the current purpose assign the “High”, «Medium» and «Low» grade of comprehensiveness to the three parts on the vertical axes, with formal limits at, let´s say, 35 and 55 percent.

The overall results suggest that a third of examined AI systems performs in terms of comprehensiveness in a top category, while majority can be assigned to medium category of comprehensiveness.

There can also be seen disproportions between the evaluation results for the systems by researchers on one side and creators on the other side. We tried to acquire from the creators´ teams their own evaluation; the most compact set of answers was provided by the AdVerify company which delivers the FakeRank AI machine. Surprisingly, two sets of major qualities and properties of this system as seen by its creators versus independent researchers match just loosely. In the outcome, the creators´ rating comes out as lower than the researchers´ one, as it is showed in the Table 4. Specifically, the creators had rated better special functionalities that were not clearly visible in the systems´ descriptions; on the other side they did not rate too high potential abilities of the system in the better weighted categories that describe the potential of directly revealing disinformation in general as well as detecting clickbaits. (Note to the methodology: the evaluation by creators has the standard category structure adapted to just one evaluator with the vote weight of 100%.)

Table 4: Assessment of system qualities –researchers vs. creators

Case: FakeRank

	System	Veracity evaluation – > Fake news detection		Detection of manipulation of facts		Useful extra functionalities		Σ for the system
		= Indicator A		= Indicator B		= Indicator C		
		(weight 70%)		(weight 20%)		(weight 10%)		
		resultant	weighted	resultant	weighted	resultant	weighted	
8	**FakeRank – by research**	39.25	27,47%	69	13.8%	29.25	2,925%	**44.2%**
8	**FakeRank – by AdVerify**	40	28%	10	2%	35	3.5	**33.5%**

Conclusion

Although it is unlikely that the AI will play key role in a few next years, it still can contribute partially but nevertheless significantly to detecting and debunking fake news within context of fighting information disorder. This contribution of AI can be even more relevant if there will be involvement of additional AI features in the currently only partially automated fact-checking and fake news detecting systems. Our survey has brought together a first comprehensive but still only tentative overview of some prototypes focused at detecting and debunking fake news and fact-checking with AI features. However, only few of them appear to be independently tested and sometimes these pilot testings show huge discrepancies between claims by producers and testers´ findings. Moreover, very few AI machines developers are interested in providing further details about their products and functionalities for studies like ours. This raises suspicion about their

real performance. We have stated below sources that communicated with us, although some of them did not explain to us all issues. In some cases it appears that there are only abandoned early versions of AI backed prototypes. There is a need for a larger and more detailed study with involvement of AI specialists who would be able and allowed to test all available AI machines with their key features and functionalities. Those most promising AI machines should be further supported and developed. In general, there is a need to pool human and financial sources and to develop and/or to test further the most promising AI machines that could help us to tackle information disorder as soon as possible. There appears to be prevailing consensus that this task requieres a few more years at least.

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Or Levi, Founder @ AdVerif.ai, or@adverifai.com, February 20, 2018 FakeRank
Naeemul Hassan, Assistant Professor, Department of Computer and Information Science
The University of Mississippi, nhassan@olemiss.edu, February 20, 2018 ClaimBuster + BaitBuster

Minutes from Adria Information Disorder AI Tools 2018 Workshop, held on June 29-30, 2018, in Koper, Slovenia

SESSION 1, FRIDAY

Andrej Školkay opened the meeting, welcoming and introducing the others physically present - John Boyd, Bence Ságvári and Francesco Adolfo Danza, (later arrived Peter Matzneller and Michal Hradický) and those online (Juraj Filin, Nikolau Stefanos, Bernie Bencoe, Boris Zizek).

He went on to talk about how Facebook (FB) is developing its own AI, employing some 20,000 people to combat security and content, also in the name of fake news.

Francesco interceded to note that FB had decided to close out a lot of things (in respect of data access) making it much harder to monitor certain processes. He believes news could and should be take out of FB altogether. John agrees that it may be the best solution, albeit infeasible really.

FB claims its AI and software are succesful at eliminating fake news, but it is not in the business interest of FB to ban fake news, as it is not focused on truth, noted Franscesco.

Andrej continues, stating how there are already around 50 orgasnisations in Europe tackling the problem of fake news and about 150 worldwide. So how to get more deeply involved?

According to the research of SCM, the software Fighthoax claims to have the best overall score, with the company claiming its algorithm works at 89% accuracy. Claimed to be the first AI algorithm to check and detect FN.However, comparative as well as independentent individual assessment shows that Fighhoax, which gained a lot of publicity within EU, does not seem to perform so well. This inconsistency, as well as the general curiosity about involvement of AI into fighting FN, as presented in policy recommendations on fact-checking fact checkers, carried out within COMPACT Project in early 2018, was the main reason to organise this small workshop.

Franscesco notes that very little news is actually fact based, which poses problems when it comes to detection.

Online participant JURAJ starts to speak as the co-author of the analysis on various AI fake news detection systems He explains the different AI tools being used to combat fake news, misinformation and disinformation

(inclusive of social networks)
Different systems have different pros and cons, so they had to choose some principal characteristics about what an AI system should offer in order to create a matrix. The study has a weakness in the human evaluation as this can be subjective and so inconsistent, also due to a lack of or different comprehension of questions.

The analysis applied three principal indicators:
A. Recognition of V ERACITY (70%weight)
B. Detecting the MANIPULATION OF FACTS (20% weight)
C. Specific functionality (10% weight)

Some of the analysed systems have interesting funcitonalities, but until a more complex analysis is done, the methodology is not entirely complete or efficient – questionable.

Andrej noted that the analysis was applied because they were not able to collect the correct data, but there were differences between what was claimed and what is reality. Some companies gave no feedback or data and some systems are now obsolete.

Nikolau recommended removing certain products from the list and setting up a system with more objective criteria etc.
The conclusion was that although some open source solutions can be useful, funding would be required to undertake a more comprehensive analysis of available AI tools and functionalities.

In response to John's question on when the list was compiled and based on what criteria, Andrej noted that it was compiled based on availability, feedback and expert recommendations in recent months.
Everyone agreed that a **standard matrix would have to be established and then the analysis performed combining media and IT experts to get it right. An alternative would be to get access to proprietory data and run independent test focused at accuracy and comprehensiveness with real sample of FN.**

BERNADETTE OPENS SESSION 1615
Bernadette introduced herself and her background before going on to explain about machine learning algorithms and how they are used in the US, for instance. She **questioned the accuracy of the algorithms in analysing people, as the predictions can often be wrong.**

She noted that, unlike in Europe, there was a lack of regulation in this area in the US, although some organisations do exist, e.g. AI Now Institute, Center for Democracy and Technology.

Bernie explained how through **machine learning the algorithms classify people into specific categories, essentially making decisions based on the analysis**.
Giving examples, she described how ZIP codes are used to determine how much car insurance you should pay, but she then touched on a more serious area in granting parols. Nobody understands how the algorithms work or how they were put together, so the algorithms themselves are not transparent and computer science in itself is not based on ethics or other values.

Bernie is calling for transparent checkpoints that would be there for social scientists to examine and report on, namely:
Checkpoint 1 – data, already bad? How is data procured?
Checkpoint 2 - data cleaning
Checkpoint 3 - algorithmic choice, which used and for what? Suitability
Checkpoint 4 – system design
Issues exist in respect of which weights should be applied, the assumptions made about people, so weighting should be changed to see how this affects the results (race, gender, age etc).
What is fair? What is biased? Is the algorithm doing what it is supposed to?
Checkpoint 5 – algorithm results, error rates, wrongly classed individuals (parol), what happens?
Checkpoint 6 - results clear and comprehensible

Francesco asked how you apply this practically to the current problems in this area, citing Facebook as an example where the computers make the decisions. Although some parts of the algorithm cannot be known, some parts can be worked out.
Facebook is employing a lot of AI to get things to work the way it wants, while not telling anyone how they are doing it etc.
Ethical questions come to the fore when selecting the criteria for algorithms in respect of human characteristics.
Franscesco believes that if we cannot access the black box of Facebook etc, then we should at least find ways to analyse them as best as possible.
Bernie qupped in agreement that there is no free lunch in computer science.

Bernie spoke more about the parol system and how AI is decising on who gets parol and who does not.
John asked how long AI how been used for the parol granting system, while questioning the integrity of it. He pointed out how private companies involved in the system in the US could formulate the algorithms to work in their favour, namely that they could ensure more people stay incarcerated for financial gain.

Bernie agreed that the information put into an algorithm has its consequences. On the parol system, she said AI is being used increasingly in recent years, but that it had already been used for around ten years or so to decide on parols.

This poses a major question about the morality of how the alrgorithms are created, especially in future, as algorithms can be abused and misused for profit – formulated with a bias.

Franscesco on FANDANGO
Franscesco introduced himself and the project Fandango, which is aimed at detecting and combatting fake news and its dissemination, by combining merging technologies from big data analysis and AI and creating a set of tools to support the detection of fake news and misinformation.

The Fandango project, launched in January 2018, aims to create a platform with unified techniques to aggregate and verify communication for Europeans. Five countries are already involved. Eventually, the tools to combat fake news over the long term should be created.

Franscesco explained the technical aspects of the project (see presentation), including about how they would employ data lake architecture using different sources, like social networks, knowledge databases, news portals, corporate data and internet – which are all converted and put into data lake.

The applications could be endless, but some mentioned include climate, immigration issues, election processes and so on.

SESSION 2, SATURDAY

Attending: Andrej, John, Bence, Francesco, Peter, Michal
Online: Nikolau, Juraj

BENCE:
ASS - ALGORITHMED SOCIAL SPACES
Bence introduced himself and the meaning of ASS, a cross-national survey employing computational social sciences (CSS) using big data and unusual types of data to investigate real traditional social phenomena.

He explained how he had producred the complete data set of users from the former Hungarian social network IVIV, which preceded Facebook and was widespread in Hungary. That service was set up by 3 friends and became a huge success. It eventually shut down after it was bought up by Hungarian Telekom in 2006.
Its downfall can be put down to bad management and unscaleable architecture, but the data remained and very few people deactivated their account as they switched to Facebook and others.

Andrej questioned whether it would not be good to make a kind of EU-wide version of a Facebook social network. Discussions had taken place and attempts made in the past, but in vain. Francesco noted that Europe was no good at creating global digital platforms. John expressed the opinion that Facebook also had its lifespan and would be taken over by networks employing more VR and the like, meaning there was an opportunity to create an alternative founded on greater personal security, while eliminating flaws found in Facebook, for instance.

Bence spoke about how although Facebook is not so available for data, certain aspects of Twitter and Instagram could be stored and analysed, with millions of Tweets every day.

The ASS project wants to act like a kind of incubator and is looking for partners, currently negotiating also with the Hungarian mobile network. If successful, they will get the metadata of the past 12 months of calls – who, when and where, etc

Speaking on fake news and disinformation, Bence mentioned the portal ORIGO – the largest portal of former Hungarian Telekom, bought by some crony of the Hungarian government. It now produces biased news, even propoganda, and targets people going against its opinion, such as Bence (he shows their hitlist, where he

proudly holds a place).

Bence explained how Hungarian academic sciences are having funding choked as the subject matter of studies being conducted is being controlled. There is also victimisation, with the government basically dictating which surveys, applied research etc. would be funded.

Bence explained more about the project and also about the social situation in Hungary.

Peter

German view of AI and fake news

Peter introduced himself and his employer, the German audivisual media regulator, responsible for commercial broadcasters and online publishers, but also with competence for fake news, disinformation, hate speech and so on.

Peter spoke about 28-member ERGA and its best practices and about the sub-group dealing with plurality, internal and external.
From the perspective of media regulator – there are four main principles of online disinformation.
Michal explained the work of the subgroup for media plurality

Peter noted that as a regulator, they do not want to tell industry to do exactly this or that. Instead, they say "this is the problem, we have to solve it, please come up with solutions and we will confirm its appropriateness".

Four key aspects of online disinformation (or fake news) that the group focuses on:
1. journalistic standards
2. the Right of reply
3. Sane media sector and quality journalism
4. Enhance Media literacy – educating people

The German regulator believes it should have regulation also over everyone who is doing something journalistic, FB pages, blogs etc, anybody saying anything. Peter noted that part of the problem is how the lines between different service providers, like broadcaster, publisher etc have now become very vague.

Right of Reply – it works, but has its weaknesses. Fixing fake news and statements with correct facts. Maybe force social networks and publishers

Franscesco: So who will take care of education in this area?
Parents are demanding it from schools etc. As regulator, direct funding will be given to projects that are put in place by NGOs and associations etc.

Next steps
- several projects in Germany – Media policy lab, AlgorithmWatch (ngo)
- HLEG on AI – tries to get grasp on these issues.

- Legislative acts dealing with online disinformaiton. Social networks are obliged to deal with hate speech etc, but not fake news.
- Fake news – the role and powers of the regulator, independence from the government
- Policy Lab – inviting other regulators for cooperation

Various measures aimed at combatting the rising level of misinformation and disinformation include a Code of practice, an independent European network of factcheckers, secure European online platform on disinformation, studies on "online sponsored content"
We are seeing the EC do a lot in preparation for legislative acts, but there is not enough time to get legislation pushed through before the Commission is elected in the autumn of 2019, so responsibility for new measures will fall on the new Commission.

NIKOALOU

Brief history of AI and how it works

Nikolau explained the definition of AI and how we are trying to make machines intelligent enough to have foresight and understanding of its environment. He provided a brief history of AI development from Alan Turing in 1936 until the present day.

Nikolau spoke about the different kinds of AI, split into Supervised and Unsupervised, and their various applications. This led to discusison on the ethical thinking in AI and if AI will decide on human fate or life (as they do in the US parol system).

He looked at how close we are to singularity, given the level of AI being used for smart weaponry, automated vehicles and so on, with job losses to AI rising constantly. Will AI be used as a police force in future or for decision-making in the judicial system?

Nikolau also touched on how Facebook had abused AI to monitoring users daily life without their knowledge, but also how the image of AI presented by Hollywood, for instance, is making people wary and fearful of what the future of AI holds.

As the programme had run over, the final speaker John agreed to present very quickly.

JOHN

Media Integrity in the Era of Fake News and Trumpism

John outlined the different sources of fake news and why they are produced, namely:

- politically motivated (e.g. elections in US and Kenya)
- sensationalism (taboids willing to take the lawsuits)
- publisher bias or error (e.g. Fox news)
- monetary gain (Macedonian teenagers – Google ads)
- protest or activism (BBC World War III scam)
- entertainment – fun, mocking, scandals, revenge
- Trumpism (wagging the dog)

- conspiracies

John went on to talk about Social network dominance and how it is affecting publishers, with users now proone to commenting on Facebook shares rather than on publisher websites, for instance. Facebook carries no liability as a publisher and according to an MIT study on Twitter, users are 70% more likely to retweet falsehoods than true facts. Fake news spreads quicker and reaches a wider audience than the truth.

Donald Trump's tight election victory can also be put down to Macedonian teenagers in Veles who realised how to make Google ad revenue.
They set up over 100 pro-Trump websites filled with sensational and fake content, created or bought around 200 bogus FB profiles and groups to spread the news. One teenager made EUR 16,000 in the space of 3 months via just two websites.

John then looked at some of the different tools and applications being applied at present, with some interesting systems already operational (e,g, Full Fact, Politifact, Open Mind).
John devoted the remainder of his presentation to explaining how blockchain technology could be used also to combat and eliminate fake news by applying the principle of „wisdom of the crowd“. He noted how the EU is already employing blockchain technology to combat fake news and disinformation, with the European Commission saying The EC says blockchain applications can help provide transparency, reliability, and traceability of news on the Internet.

Andrej thanked the speakers and called the seminar to an end.

Minutes take by John Boyd

George Kary, Head of Operations, March 1, 2018, g.kary@fighthoax.com, FightHoax, v.zotos@fighthoax.com

Adria Information Disorder AI Tools 2018 Workshop

Artificial Intelligence (AI) and the Information Disorder

How the AI Helps to Tackle Fake News and Who Provides: (Mapping) Algorithms, Systems, Institutions

June 29-30, 2018

Središče Rotunda, Social Centre of Primorska, Destradijev trg 11, Koper, Slovenia

CONVENOR:

School of Communication and Media, n.o. Bratislava, Slovakia

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PROGRAMME:

June 29, 2018 – 2 p.m.-6 p.m.

Artificial Intelligence (AI) and the Information Disorder

Information Exchange, presentation and assessment of majority of existing/developing AI systems; Presenting and discussing research and learning methods applied by AI developers and social media researchers by inquiring these tools;

TBA:	Strengths and weaknesses of traditional, intellectual solutions for mitigating post-truth issues
Stefanos Nikolaou:	How AI actually works
Dr. Andrej Školkay:	Strenghts and Weaknesses of AI tools fighting fake news and fact-checking
Ing. Juraj Filin:	Comparative Assessment of AI specialised systems

June 30, 2018 – 9 a.m. -12 a.m.

How the AI Helps to Tackle Fake News and Who Provides: (Mapping) Algorithms, Systems, Institutions

Formalizing the findings, postulating outlines and producing structured outputs

Dr. Bence Ságvári:	"Algorithmic Societies" Project
Bernadette Bencoe (via Skype):	An Alternative Assessment of AI
John Boyd:	Journalistic and Media Perspectives

PARTICIPANTS

Dr. Andrej Školkay

Andrej Školkay is senior researcher and coordinator of the research team at School of Communication and Media. Andrej Školkay published on various aspects of media, focusing on the relationship of media and politics. He is the author of Media and Globalisation (School of Communication and Media, Bratislava 2009) and Media Law in Slovakia (Kluwer Law International, The Netherlands 2016). Most recently he co-authored an overview of fact-checking and fake news detecting and debunking organisations. Andrej Školkay is currently director of the School of Commuenication and Media in Bratislava.

Dr. Bence Ságvári

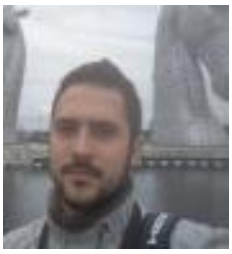
Bence Ságvári is a senior research fellow at the Hungarian Academy of Sciences Centre for Social Research. From 2011, he is the Hungarian national coordinator for the European Social Survey (ESS). Between 2015 and 2017 he was the principal investigator of the computational social science project “Life cycle of an online social network. Big Data analysis” (Grant No. OTKA K112713). Ságvári has more than 10 years of research experience in qualitative and quantitative research. He has been represented as the Hungarian partner in several cross-national comparative survey projects, such as EU Kids Online (EUKO) or World Internet Project (WIP). His research interests include values and attitudes, youth, survey methodology, social networks and network analysis, the use Big Data in social sciences. Currently he works on a project on "algorithmic societies" at HAS Centre for Social Sciences, Budapest. His work focuses on discriminatory practices and spread of fake news and disinformation. At this stage, this is not a full-fledged research project with a well-defined research outcome, but rather a project that aims to create an international network (or join already existing networks) and develop a research plan that we could use for applying international grants.

John Boyd

John Boyd is a member of the Slovak Section of the Association of European Journalists and of the Slovak Syndicate of Journalists. He has worked on various investigative cases, including as regional partner with the ICIJ, while operating independent portals in English in Central Europe under TheDaily brand name.

Ing. Juraj Filin

Senior research advisor (School of Communication and Media). He is a long-time active journalist specializing in economic issues, international relations, science and technology.

	**Stefanos Nikolaou** He received a Diploma (5-years studies) in Information and Communication Systems Engineering in 2016 from the University of the Aegean. He is currently a master student at University of Glasgow. His research interest are in the field of machine learning, web science and applications and Information Security.
	**Peter Matzneller** Since 2015, he is Consultant Legal and European Affairs at the Joint Management Office of the German supervisory bodies for commercial television in Berlin. The Joint Management Office coordinates and organizes the work of the different committees of the 14 State Media Authorities in Germany. Peter Matzneller is responsible for elaborating common positions and for representing them in front of the organs of the European Union and in the relevant European associations.
	**Bernadette Bencoe** (via Skype) **Is a PhD Candidate in computer science and mathematics at UCLA, USA.**
	**Prof. Dr. Boris Zizek** (via Skype) Boris Zizek is a professor of educational science, socialization and adolescence at Leibniz University Hannover, where he is researching growing up in the digital age. He has also done research on this topic as a postdoctoral fellow at Harvard University and has published in *Human Development* among others. Zizek researches with reconstructive-qualitative methods and is part of the renowned Study Group *Reconstructive Social Science* at the Hanse-Wissenschaftskolleg Institute for Advanced Studies in Delmenhorst.

A READER

Adria Information Disorder AI Tools 2018 Workshop

June 29-30, 2018, Koper, Slovenia

The Future of Fact-Checking: Moving ahead in political accountability journalism

Alan Greenblatt

To explore challenges of fact-checking, the American Press Institute, the Poynter Institute and Duke University Reporters' Lab hosted a summit **in 2017. The event included more than 70 participants. This shortened version of the report encapsulates those discussions, and explores how the enterprise of fact-checking can advance and adapt, as initially summarisd by Alan Greenblatt.**

Neil Newhouse, a Republican pollster and a summit participant: **"I don't think you've got a fact-checking problem as much as you have a problem with the idea of the news business being impartial observers. Americans simply don't trust the news media in general."** Newhouse cited numerous polls that demonstrate a declining faith in news outlets.

The push in recent times to offer more analysis as a means of distinguishing their coverage may have undermined the credibility of media outlets, suggested Greg Linch, a data developer at McClatchy**. Readers don't always distinguish between analysis — a considered judgment about how, for instance, a policy is likely to play out — and opinion.**

Jessica Arp of WISC-TV in Madison, Wis., one of the pioneers in fact-checking at the local level, said **reporters must work harder to engage their audiences in the story development process.** That effort should help readers and viewers understand that reporters are not trying to promote their own agendas; rather, they are attempting to help people to sort truth from fiction themselves.

The context in which fact-checking often appears on digital platforms — draped within news coverage and opinion and even advertising — affects its credibility. "One thing that's important to consider is **the role that shady sponsored content plays in diminishing trust in fact-checking and the press,**" said Joyce Garczynski, a communications librarian at Towson University.

Addressing partisan and cognitive bias

The potential pitfalls of journalists attempting to play referee have been inherent to fact-checking since it first emerged as a stand-alone pursuit more than a quarter-century ago, Tom Rosenstiel, executive director of the American Press Institute, said at the summit.

Dan Kahan, a professor of psychology and law at Yale University: "People are trying to be who they are as members of a group, **There are ways in which people can use that information, but otherwise that's overridden by their desire to be part of a community and have the collective identity." It's not ignorance.** Kahan's experiments show that the more numerate or educated people are, the more likely they are to give wrong answers if they feel partisan fealty demands it.

The sense of subscribing to a partisan identity can extend to people's choices of news outlets.

Even when people do change their minds about misinformation thanks to a fact check, they may dismiss the results, said researcher D.J. Flynn of Dartmouth College. They may believe corrective information about a particular economic fact but may subsequently downgrade the amount of importance they attach to that particular issue, because their new (correct) stance does not help their party's cause. Therefore, Flynn said, "If you correct a false claim, they might double down on their existing opinions." In other words, persuasion is a moving target. **Presenting people with evidence and discrete facts may not be enough to change how they think about an issue more broadly.**

And *fact-checkers,* no matter how well-intended or neutral they consider themselves to be, **must be willing to check themselves for bias,** suggested Brad Scriber, deputy research director for National Geographic magazine. "How can fact-checkers be assured that we are keeping our own biases in check? How do various outlets calibrate to be sure that your staff is objective and remain so?"

A growing challenge: Misinformation and social media

There are two clear challenges: One, g**etting carefully checked information to the audiences** who would benefit from it. The other: **Figuring out how to respond to the torrent of misinformation that is being spread rapidly via social media and other methods**.

As one conference attendee noted, fake news is the "like" economy working at peak efficiency. **Fake news is designed to have the hallmarks of content that spreads frictionlessly through social media: headlines that stick and generate lots of clicks. It also works in terms of reinforcing group identity, encouraging people to embrace stories that reinforce their existing worldview**. "People who think they've been pushed out of the political world as it is right now are going to be susceptible to misinformation — they're going to focus on whatever makes them feel better," Brooke Binkowski, managing editor of Snopes.com.

How fact-checkers will respond to new challenges

Summit participants proposed and discussed some responses to fact-checking's issues. Here is a summary of ideas.

1. Greater use of technology
Fact-checkers and academics at the summit discussed the need to "inoculate" against fake news before it goes viral. Tim Franklin, president of the Poynter Institute, noted that Facebook is working with fact-checkers and using the International Fact-Checking Network's code of principles to help sort out the verified from the fake. A few weeks before the 2016 US Presidential election, Google added a "fact-checked" label to its Google News results to help highlight stories that had been vetted by journalists. Tools such as schema.org can mark up content in ways that machines can read it and recognize it as having been fact-checked. Other hallmarks of quality content can be highlighted: **the use of primary sources, a rigorous corrections policy, the use of eyewitness quotes.**

In addition, more research is needed about how audiences use technology and tools such as search engines, suggested Nikki Usher Layser, an assistant professor of media and public affairs at George Washington University.

2. Fact check issues, not claims
Partisans are disinclined to accept negative conclusions about statements made by politicians they support. Passive and disinterested audiences are disinclined to pay attention to a fact-check of a bit of a statement made by a politician or government leader they may have never encountered. A potential solution to effectively reaching both of these groups is to turn the current structure of fact-checking upside-down: **Fact check topics and issues, not one part of one individual's statement.**

Going beyond the "he lied/she lied" claim-checking model will help emphasize larger ideas rather than small details, and will help create knowledge rather than inciting partisan backlash.

3. The costs and benefits of speed
Some experts says it's best for fact-checking to happen in real time, but it's also proven difficult for broadcasters to do it effectively. Having correct information handy requires considerable preparation and resources and is difficult to pull off in real time in a convincing and compelling way.

Fact-checkers are experimenting with bots and other Internet tools that find and rate claims instantly — a kind of missile defense system that can intercept false claims as soon as they're launched.

On the other hand, "**instant" fact checks may not always be the most convincing**. What may be just as important as checking claims as immediately as possible is **a mode of "acceleration" — finding ways to incorporate fact checks into people's regular news consumption behavior.** Not everyone watches speeches or events unfold in real time, so getting fact checks to them as they encounter news as part of their regular routines is an important challenge to address and potentially more effective than real-time checks.

4. Increasing transparency and trust
The summit also included discussions about whether people are isolating themselves in echo chambers. Kelly Garrett, a professor of communication at Ohio State University, noted "quantifiable evidence" that such **echo chambers don't exist**, that people who use Facebook or other social media sites as a source of news are not less accurate in their understanding of contemporary events. "**It's not that they haven't heard you,**" Garrett told the assembled fact-checkers. "**They just don't believe you.**"

Before making progress in the effort to broaden the audience for fact-checking, "we have to build that foundation of trust," said Jane Elizabeth, senior manager for the accountability journalism program at the American Press Institute.

It's **crucial that reporters back up their assertions with carefully vetted sources**, said Alexios Mantzarlis, director of the International Fact-Checking Network at the Poynter Institute. It's not enough to simply state that a politician had gotten her facts mixed up. "At a time of no trust in the media, why would the voter trust the [fact-checker] over the politician he or she supported?" Mantzarlis asked.

Attendees also debated whether it would be best to drop the traditional journalistic cloak of objectivity, letting audiences know where a fact-checker stands politically, for instance, so they can make an informed choice from the media menu. This is not always a particularly popular option among journalists, and it's complicated by the definition of "transparency." The public may see transparency as knowing such things as whether reporters own guns or attend church regularly or give donations to interest groups.

While fact-checkers as a whole have achieved greater mastery of both topic selection and their methodology, that hasn't automatically translated into increased trust. Other steps must accompany that high-quality fact-checking, summit attendees said, and discussed some steps:

4. **Engage with subjects or readers who strongly disagree with their findings.**
5. **Share with their audience information about *why* they're checking claims. How was the claim selected? Did a large number of readers and viewers request a check, for example?**
6. **Take questions or ask for suggestions via Facebook Live or other tools.**
7. **Monitor and explain the partisan breakdown of the sources of claims that they check.**

8. **Explain why certain sources of information, such as statistics from government agencies, are seen as more reliable than others.**
9. **Bring diverse organizations together to check important claims, providing assurance that a variety of fact-checkers agree on the substance behind a controversial topic.**
10. **Create a database of verified facts, housed by a neutral source and available for the public to share and analyz**e. Work along this line is already being done by the Internet Archive, which is linking fact-checks by FactCheck.org, PolitiFact and The Washington Post's Fact Checker to video clips of statements made by public officials as contained in its searchable TV News Archive.

5. Connecting with new audiences

Fact-checks are generally presented using a standard model: A claim is rehashed and given context, background information is provided about the issue, an accuracy assessment is given along with a brief explanation of that truth ranking. But **several participants discussed the need to rethink the design of fact checks**. And connecting with new audiences just might mean starting over from scratch: **not only tearing up the prevailing fact-check presentation model, but rethinking the ways in which readers and viewers want to engage**. It also means thinking long and hard about what kind of audience is open to the concept of fact-checking and how best to reach them.

Starting with the idea of the reader first in mind is paramount, suggested Michelle Ye Hee Lee, a fact-checker for The Washington Post. Visualize the actual reader — especially the ones who are being missed, whether due to technological change or their distrust of media outlets.

There are t**wo main categories of readers and viewers** that fact-checkers need to do a better job of reaching. **The first group was described as younger, digitally savvy and eager for information provided in novel formats**. **The other consumes more news through older methods, such as print and television,** and is harder to reach not because of platform preferences but because of trust issues.

Ideas for reaching the second group were more analog. Correct information, not necessarily labeled as a fact check, can be offered through collaborations with radio talk show hosts for discussion. "An important tactic going forward will be finding ways to bring fact-checking to people in neutral packages," said the Banyan Project's Stites.

6. Developing new formats

The **need for finding new formats** was much discussed at the summit, including better use of graphics and visual aids to make their information more accessible; considering shorter writing that doesn't get lost in the weeds; making sources more visible; and taking advantage of all social media platforms.

Michelle Ye Hee Lee of The Washington Post noted that each Friday leading up to the 2016 election, she and her colleagues broadcast findings from the week on Facebook Live. And, she added, fact checks had among the highest engagement of any of the news organization's offerings on Snapchat. These **non-traditional tools** were a way of presenting information where readers and viewers live, not waiting for them to navigate their way through a website.

GIFs, Instagram Stories and Twitter Moments are other ways of presenting information through new channels. Digital-only fact checks on platforms such as Facebook have become more common. Other efforts are already underway, such a "Share the Facts" app for Alexa, Amazon's home assistant device, that can answer questions about some claims; and ClaimBuster, a tool developed at the University of Texas at Arlington, designed to quickly call out falsehoods on Twitter. Ronnie Rojas, who helps lead fact-checking efforts at Univision News in Miami, described his newsroom's new way of presenting fact-checks with appeal for younger audiences: comics.

7. Enlisting new allies

Journalists certainly have no monopoly on truth, or its pursuit. **Teachers** are attempting to build more lessons around the need to verify information, offering checklists or coming up with games that help lead them through the process of determining whether statements are true. Librarians also are providing information and sources about topics that are in the news.

News organizations can further widen their partnerships with local media, offering up information that perhaps could be presented so it's bannered or tagged more prominently with the local provider than the national outlet, suggested Arp, the WISC-TV reporter. There are other ideas for presenting fact-checks on what one person called "a retail level." They included:

5. Groups of clergy routinely share ideas for sermons, one participant said, so why not offer up talking points toward a "no false witness" campaign for truth?
6. Younger audiences could post **selfie videos asking or answering questions about factual claims,** which could be embedded in broadcasts or on the web.
7. New or existing **book clubs could host events to talk about the news and discuss facts.**
8. **Games** such as trivia contests could be used to guide people through information and misinformation.
9. **School assemblies** could build on classroom work around media literacy — turning into what one summit attendee called "pep rallies for the truth."

A final call to action: Become more audience-centric

What's needed for fact-checking in general is a more audience-centric approach, said API's Rosenstiel. That involves not only coming up with **new delivery systems for fact-checking,** but also entails thinking more about **the purposes of the pursui**t. That is, the focus of fact-checking shouldn't exclusively be on weighing the veracity of individual statements. The goal should be finding ways to empower audiences to understand things for themselves, rather than telling them whether something is right or wrong. "These political claims are subsets about what's true or not about a larger issue," Rosenstiel said. "If you become more audience-centric, facts become subsets of knowledge around an issue."

Another way to expand audiences: **Expand the scope of coverage**. As a profession, fact-checking focuses almost exclusively on government. What other topic areas do audiences need help understanding? Health, science, business, sports, even entertainment? To the extent fact-checking becomes more of a consumer service, audiences will come to understand it's intended to be a tool that helps them. "As we look to the next decade of fact-checking, we've got to grow the audience," Adair said. "We've got the choir, but we've got to stop preaching to the choir. We've got to get the rest of the congregation."

https://www.americanpressinstitute.org/publications/reports/white-papers/future-of-fact-checking/single-page/

Why You Can't Help Believing Everything You Read

You shouldn't believe everything you read, yet according to a classic psychology study at first we can't help it.

Dr Jeremy Dean

WHAT IS THE MIND'S DEFAULT POSITION: are we naturally critical or naturally gullible? As a species do we have a tendency to behave like Agent Mulder from the X-Files who always wanted to believe in mythical monsters and alien abductions? Or are we like his partner Agent Scully who was the critical scientist, generating alternative explanations, trying to understand and evaluate the strange occurrences they encountered rationally? Do we believe what the TV, the newspapers, blogs even, tell us at first blush or are we naturally critical? Can we ignore the claims of adverts, do we lap up what politicians tell us, do we believe our lover's promises?

It's not just that some people do and some people don't; in fact all our minds are built with the same first instinct, the same first reaction to new information. But what is it: do we believe first or do we first understand, so that belief (or disbelief) comes later?

Descartes versus Spinoza

This argument about whether belief is automatic when we are first exposed to an idea or whether belief is a separate process that follows understanding has been going on for at least 400 years. The French philosopher, mathematician and physicist René Descartes (below, right) argued that understanding and believing are two separate processes. First people take in some information by paying attention to it, then they decide what to do with that information, which includes believing or disbelieving it.

Descartes' view is intuitively attractive and seems to accord with the way our minds work, or at least the way we would *like* our minds to work.

The Dutch philosopher Baruch Spinoza (above left), a contemporary of Descartes, took a quite different view. He thought that the very act of understanding information *was* believing it. We may, he thought, be able to change our minds afterwards, say when we come across evidence to the contrary, but until that time we believe everything.

Spinoza's approach is unappealing because it suggests we have to waste our energy rooting out falsities that other people have randomly sprayed in our direction, whether by word of mouth, TV, the internet or any other medium of communication.

So who was right, Spinoza or Descartes?

How many years in jail?

Daniel Gilbert and colleagues put these two theories head-to-head in a series of experiments to test whether understanding and belief operate together or whether belief (or disbelief) comes later (Gilbert et al., 1993).

In their classic social psychology experiment seventy-one participants read statements about two robberies then gave the robber a jail sentence. Some of the statements were designed to make the crime seem worse, for example the robber had a gun, and others to make it look less serious, for example the robber had starving children to feed.

The twist was that only some of the statements were true, while others were false. Participants were told that all the statements that were true would be displayed in green type, while the false statement would be in red. Here's the clever bit: half the participants where purposefully distracted while they were reading the false statements while the other half weren't.

In theory if Spinoza was correct then those who were distracted while reading the false statements wouldn't have time to process the additional fact that the statement was written in red and therefore not true, and consequently would be influenced by it in the jail term they gave to the criminal. On the other hand if Descartes was right then the distraction would make no difference as participants wouldn't have time to believe or not believe the false statements so they wouldn't make any difference to the jail term.

And the winner is…

The results showed that when the false statements made the

crime seem much worse rather than less serious, the participants who were interrupted gave the criminals almost twice as long in jail, up from about 6 years to around 11 years. By contrast the group in which participants hadn't been interrupted managed to ignore the false statements. Consequently there was no significant difference between jail terms depending on whether false statements made the crime seem worse or less serious.

This meant that only when given time to think about it did people behave as though the false statements were actually false. On the other hand, without time for reflection, people simply believed what they read.

Gilbert and colleagues carried out further experiments to successfully counter some alternative explanations of their results. These confirmed their previous findings and led them to the rather disquieting conclusion that Descartes was in error and Spinoza was right.

Believing is not a two-stage process involving first understanding then believing. Instead understanding *is* believing, a fraction of a second after reading it, you believe it until some other critical faculty kicks in to change your mind. We really do want to believe, just like Agent Mulder.

Believe first, ask questions later

Not only that, but their conclusions, and those of Spinoza, also explain other behaviours that people regularly display:

10. Correspondence bias: this is people's assumption that others' behaviour reflects their personality, when really it reflects the *situation.*

11. Truthfulness bias: people tend to assume that others are telling the truth, even when they are lying.

12. The persuasion effect: when people are distracted it increases the persuasiveness of a message.

13. Denial-innuendo effect: people tend to positively believe in things that are being categorically denied.

14. Hypothesis testing bias: when testing a theory, instead of trying to prove it wrong people tend to look for information that confirms it. This, of course, isn't very effective hypothesis testing!

When looked at in light of Spinoza's claim that understanding is believing, these biases and effects could result from our tendency to believe first and ask questions later. Take the correspondence bias: when meeting someone who is nervous we may assume they are a nervous person because this is the most obvious inference to make. It only occurs to us later that they might have been worried because they were waiting for important test results.

If all this is making your feel rather uncomfortable then you're not alone. Gilbert and colleagues concede that our credulous mentality seems like bad news. It may even be an argument for limiting freedom of speech. After all, if people automatically believe everything they see and hear, we have to be very careful about what people see and hear.

Benefits of belief

Gilbert and colleagues counter this by arguing that too much cynicism is not a good thing. Minds working on a Decartian model would only believe things for which they had hard evidence. Everything else would be neither believed or not believed, but in a state of limbo.

The problem is that a lot of the information we are exposed to is actually true, and some of it is vital for our survival. If we had to go around checking our beliefs all the time, we'd never get anything done and miss out on some great opportunities.

Minds that work on a Spinozan model, however, can happily believe as a general rule of thumb, then check out anything that seems dodgy later. Yes, they will often believe things that aren't true, but it's better to believe too much and be caught out once in a while than be too cynical and fail to capitalise on the useful and beneficial information that is actually true.

Or maybe by going along with this argument I'm being gullible and the harsh truth is that it's a basic human failing that we are all too quick to take things at face value and too slow to engage our critical faculties. I'll leave you to ponder that one.

Fake news leaves a lasting impression on the less smart

Alex Fradera

One reason why fake news is dangerous is that we don't like giving up reassuring certainties, and once we have a take on things, it colours further information – hence the seeming bulletproof nature of conspiracy theories and partisan political hatreds. But new research in *Intelligence* suggests this is truer for some people than others. For mentally sharp people, the results suggest it's relatively easy to jettison an outdated perspective, while for those of lower cognitive ability, the dregs remain.

Jonas De keersmaecker and Arne Roets from the University of Ghent recruited 390 participants from an online pool, and asked them to read a description of a nurse named Nathalie. For some participants this description ended with a damning revelation: Nathalie had been stealing drugs from the hospital and selling them to buy designer clothes. Understandably, these participants subsequently rated Nathalie negatively, as less trustworthy, sincere, warm, and hostile, compared to a control group who hadn't been told about her misdeeds.

All participants then completed a short cognitive ability test, measuring their vocabulary knowledge of ten words. Next, those told about Nathalie's stealing were presented with a plot twist: the accusations were entirely untrue (both accounts of Nathalie were from a "God's-eye perspective", stated as fact, with no reference to supporting evidence).

Next, the participants reviewed the information about Nathalie (with the stealing information clearly crossed out, if they had seen it earlier) and they rated her again on the various characteristics. Overall, those privy to the earlier false stealing claims now gave her much more positive ratings, similar to the control participants. But within the false accusations group, De keersmaecker and Roets found that those with below average cognitive ability (by at least one standard deviation) continued to give Nathalie more negative ratings, than their high-ability counterparts and the control group.

The sustained negative ratings of Nathalie given by the those with lower cognitive ability were only about ten points more negative than those given by the other groups, on average. This is compared to the average, 50-point positive jump in ratings seen among the false accusation group as a whole once they learned the claims had been retracted. But the researchers point out that the 10-point gap shows that for the lower cognitive ability participants, a residue of the old accusation remained, even though it was only "out there" for a short time, and unambiguously retracted. This effect would present a problem in the real world where grossly fake news of every flavour can be rapidly shared and spread – even when it only outpaces a correction by minutes, it could still leave a lasting impact on some people.

It's not clear at this stage exactly the role that cognitive ability has – for example, whether it's directly involved in the correction of false beliefs and/or if it correlates with other traits that might be relevant. This is important because cognitive ability itself is hard to improve whereas associated skills like critical thinking are more trainable. We do know that cognitive ability was still relevant even after the researchers factored out obvious confounds like the personality traits of "need for closure" and authoritarianism, both of which are associated with lower cognitive ability and related to a dislike of ambiguity.

It would be useful for research to use a more refined measure of cognitive ability than the one used. Another limitation of the current research is that no evidence was given to justify either the initial or revised claims about Nathalie (of course this is exactly how many of us encounter claims on social media and elsewhere). Future studies could examine people's ability to interpret fake, biased or otherwise dubious evidence.

There is increasing attention on how to help people tackle fake news on first contact – such as this BBC initiative, which involved mentoring school pupils on how to spot fake news — and this new study reinforces the value of such tactics. The message is that where possible, we should prevent stubborn false ideas from taking root: it may be harder than we realise to shift them once they have.

Intelligence, Media, Political December 11, 2017

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Understanding the Promise and Limits of Automated Fact-Checking

Lucas Graves

The last year has seen growing attention among journalists, policymakers, and technology companies to the problem of finding effective, large-scale responses to online misinformation. The furore over so-called 'fake news' has exacerbated long-standing concerns about political lying and online rumours in a fragmented media environment, sharpening
calls for technological solutions to what is often seen as a technological problem. This factsheet gives an overview of efforts to automatically police false political claims and misleading content online, highlighting central research challenges in this area as well as current initiatives involving professional fact-checkers, platform companies, and artificial intelligence researchers.

The influence of 'fake news' in different parts of the world remains poorly understood. Initial evidence from the US and Europe suggests that the share of online users who visit false news sites directly is quite limited, and that people exposed to these sites visit mainstream news sources far more (Allcott and
Gentzkow 2017; Guess et al. 2018; Fletcher et al. 2018). However, the same studies indicate fabricated news stories may draw disproportionate attention on social networks, outperforming conventional news, and some partisans (e.g. Trump voters in the US) appear to be regular users of false news sites. Little is known about the dynamics by which individual viral stories may influence the opinions and behaviour of specific, targeted audiences around particular events or issues.

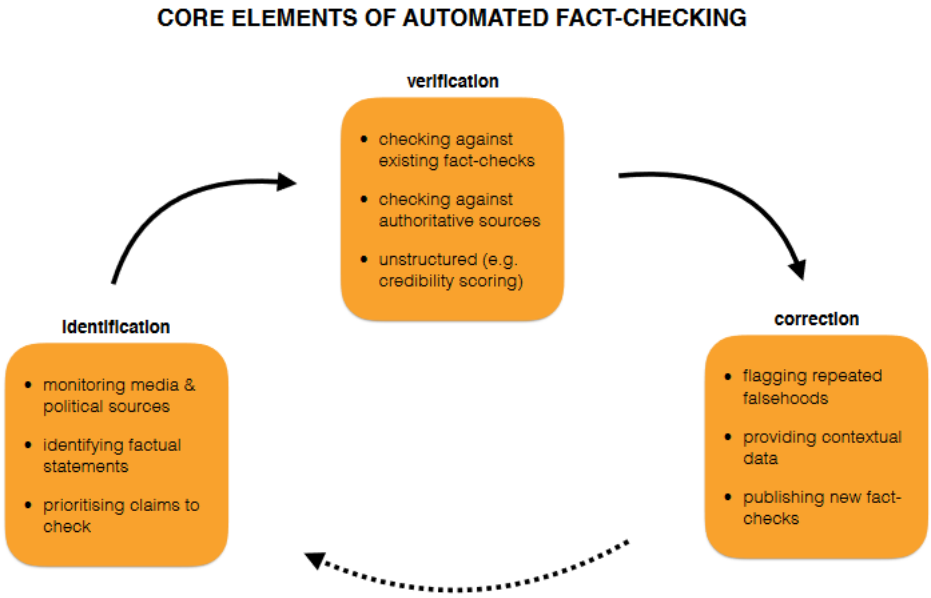
In the US and Europe, concern about commercially or politically motivated misinformation online – in particular about mounting evidence of sophisticated, state-backed campaigns operating from Russia – has fuelled a vigorous debate over policy options.
These include a raft of proposals to regulate platform companies like Facebook and Google in new ways, a question under review in the European Commission. Several countries, notably Germany, France, and Ireland, have passed or are considering legislation that penalises the distribution of false information.

These concerns have also drawn new attention to the potential of various automated fact-checking (AFC) technologies to combat false information online. However, deciding the truth of public claims and separating legitimate views from misinformation is difficult and often controversial work (see Graves 2016), challenges that carry over into AFC. Based on a review of current efforts and interviews with both factcheckers and computer scientists working in this area, this survey of the AFC landscape finds that:

- Much of the terrain covered by human factcheckers requires a kind of judgement and sensitivity to context that remains far out of reach for fully automated verification.
- Rapid progress is being made in automatic verification of a narrow range of simple factual claims for which authoritative data are available. Even here, though, AFC systems will require
human supervision for the foreseeable future.
- Both researchers and practitioners agree that the real promise of AFC technologies for now lies in tools to assist fact-checkers to identify and investigate claims, and to deliver their conclusions as effectively as possible.
- So far independent, nonprofit fact-checking organizations have led the way in developing and implementing AFC, with little activity from traditional media outlets.
- Some individual AFC tools have been built inexpensively by fact-checking groups. However, advancing capabilities and developing largescale systems requires continuing support from foundations, universities, and platform companies.

Overview

AFC initiatives and research generally focus on one or more of three overlapping objectives: to spot false or questionable claims circulating online and in other media; to authoritatively verify claims or stories that are in doubt, or to facilitate their verification by journalists and members of the public; and to deliver corrections instantaneously, across different media, to audiences exposed to misinformation. End-toend systems aim to address all three elements – identification, verification, and correction (see chart).



The first proposals to automate online fact-checking appeared nearly a decade ago. Over the last several years a growing research literature has embraced AFC as an interesting experiments by factcheckers.[7] Two recent programming competitions, the 'Fast & Furious Fact Check Challenge' and the 'Fake News Challenge', allowed research teams from around the world to test different AFC techniques on common problem sets.[8] Dr Andreas Vlachos, a lecturer at University of Sheffield, remarks on the increased attention:

problem in artificial intelligence, intersecting with practical *We published our first paper in 2014. To us, apart from our interest in politics, we thought it was a great challenge for artificial intelligence to actually work on this problem. [But] for better or worse, Trump's election increased the interest.*

Meanwhile, real-world AFC initiatives have enjoyed a wave of additional funding in the last two years. Full Fact, a London-based fact-checking charity, began developing AFC tools in 2016 with a €50,000 grant from Google and recently announced Ł500,000 additional funding from the Omidyar Foundation and the Open Society Foundations. The Duke Reporters Lab, based at Duke University, received $1.2m in late 2017 to launch the Tech & Check Cooperative, a hub for AFC projects, from the Knight Foundation, the Facebook Journalism Project, and the Craig Newmark Foundation. In January, Factmata, a London-based startup developing an AFC platform, announced $1m in seed funding.

Approaches to AFC

Real-world AFC efforts begin with systems to monitor various forms of public discourse – speeches, debates, commentary, news reports, and so on – online and in traditional media. This is a difficult problem that may involve scraping transcripts and other material from media or political pages, monitoring live subtitle feeds, or using automatic transcription.[9]

Once monitoring is in place, the central research and design challenge revolves around the closely linked problems of identifying and verifying factual claims, explored below. A tension exists in that success in the first complicates the second, widening the range of claims that must be verified. In practice, AFC implementations constrain the problem by drawing on the work of human fact-checkers and/or by sharply limiting the kinds of claims being checked.

[7] Useful research overviews are in Cohen et al. 2011; Hassan et al. 2017; Vlachos and Riedel 2014.

[8] See https://www.herox.com/factcheck/guidelines; http://www.fakenewschallenge.org

[9] A seminal discussion of monitoring and other core AFC challenges which informs this report is in Babakar and Moy 2016.

One hub for automated fact-checking projects is the Duke Reporters Lab at Duke University. **Tech & Check Alerts**, in beta testing since early 2018, automatically generates a daily email newsletter neatly listing 15 promising political claims harvested from transcripts of CNN programming. The programme uses the ClaimBuster API but identifies the speaker and strips out statements by journalists; modules are being developed to pull claims from the Congressional Record, the California legislature, and the Facebook feeds of candidates in contested congressional races. Today the email goes out at 10 a.m. EST to PolitiFact, FactCheck.org, the *Washington Post*, and the Associated Press. Another new project, **FactStream**, offers live, 'second-screen' fact-checking of major political events via a mobile app. Fact-checkers use the platform to respond to dubious claims in real time, issuing either a capsule summary from a previous fact-check, or, for new claims, a 'quick take' adding context. Its first public test came during the 2018 State of the Union address, fed by alerts from PolitiFact, FactCheck.org, and the *Washington Post*; reportedly more than 3,000 people used the app at some point during the speech. (See: https://www.poynter.org/news/review-live-fact-checking-takes-center-stage-state-union and http://www.niemanlab.org/2018/01/factstream-debuted-live-fact-checking-with-last-nights-sotu-howd-it-go.)

Identifying Claims The greatest success in AFC research has come in the area of extracting discrete factual claims from a text such as a speech or an article. The most common approach relies on a combination of natural language processing and machine learning to identify and prioritise claims to be checked. For instance, ClaimBuster, an AFC platform developed at the University of Texas-Arlington, at a cost of roughly $150,000 so far, trained on about 20,000 sentences from past US presidential debates, classified by paid human coders, to learn to distinguish 'check-worthy' factual claims from opinions and boring statements (Hassan et al. 2017). In a test during a US primary debate in 2016, more than 70% of actual claims checked by fact-checkers at PolitiFact and CNN were among the top fifth of statements identified by ClaimBuster.[10]

A number of fact-checking outlets around the world have begun relying on software to help spot claims to check. In the US, for instance, the Duke Reporters Lab recently deployed a tool that uses ClaimBuster to deliver potentially interesting claims to fact-checkers at PolitiFact, FactCheck.org, the *Washington Post*, and the Associated Press (see the box). However, so far these systems can only identify simple declarative statements, missing implied claims or claims embedded in complex sentences which humans recognise easily. This is a particular challenge with conversational sources, like discussion programmes, in which people often use pronouns and refer back to earlier points.

It is also important to note that the 'ground truth' established by training algorithms on human work is neither universal not permanent. For instance, ClaimBuster has been optimised to detect debate claims and does somewhat less well harvesting statements on Twitter. More broadly, the meaning and the importance of a particular statement may shift depending on historical or political context. Will Moy, director of Full Fact, gives the example of claims about the EU – polls show UK residents cared very little about the issue until the Brexit campaign brought it into the headlines.

Mevan Babakar, the groups' digital product manager, highlights the difference between knowing a factual statement has been made and understanding what is being claimed, a vital step in determining the importance of a question:

Identifying a factual statement is not easy but it is consistently possible. If you show me a sentence I can probably tell you if it's a claim. Understanding the meaning of a claim is hard – you need to understand the geography, what years it's referring to, and so on. Understanding how important a claim is even harder, because it changes depending on who's doing the asking, and it changes depending on the political context, and that's something that's shifting all the time.

Verifying Claims
The conclusions reached by professional fact-checking organizations often require the ability to understand context, exercise judgement, and synthesise evidence from multiple sources. Many claims don't lend themselves to simple true-or-false verdicts. But even seemingly straightforward statements

[10] See https://www.poynter.org/news/holy-grail-computational-fact-checking-and-what-we-can-do-meantime. A longer term comparison is reported in Hassan et al. 2017.

that can be debunked by people – for instance, the now-infamous Brexit campaign claim that the UK would save Ł350m
per week by leaving the European Union – present a thorny challenge for automated verification. Despite some progress no AFC system performs this reliably today. Echoing a widespread view among researchers in this area, Vlachos argues that expectations should remain modest:

The kind of fact-checking that PolitiFact does, or Full Fact, they do much more advanced things than the kinds of things I'm able to do today, or that I'm really able to do in the next 5 or 10 years at least. …

But a typical fact-check has been reported to take a day. So if we're able to save time by automating some of the simpler aspects, that's where I see the role of automation here. I don't see it as a way of replacing humans, it's more like increasing productivity because we don't have enough fact-checking at the moment.

within months which will match statements chosen by ClaimBuster against the libraries of FactCheck.org, PolitiFact, and other fact-checkers who use Share the Facts, a common tagging system that now covers more than 10,000 fact-checks.[11] In this way, the software will be able to identify an interesting claim and point to related factchecks, which may yield a 'quick hit' story, explains lab co-director Mark Stencel:

Our goals are to accelerate the reporting process but also accelerate the production of new fact-checks. … This is our whole model, which is not to try to conquer all of the big problems of automated fact-checking all at once, but to break down the assorted challenges into solvable tasks that over time will add up to automated instantaneous fact-checking, at least in some instances.

Besides its limited scope, this method faces two obstacles. First, while NLP algorithms can reliably capture close variants of a statement, paraphrasing remains a substantial challenge. As a result, a trade-off exists between 'recall' and 'precision':

Chequeado, a fact-checking nonprofit based in Buenos Aires, began using a beta version of its own AFC platform in January 2018. Called **Chequeabot**, the system was developed in-house over the last year (at a cost of roughly $20,000 so far) in part because Spanish-language NLP algorithms remain poorly developed. In its current version, the programme monitors presidential speeches and about 30 media outlets across Argentina to find claims to check; the group has published a handful of articles based on suggestions by Chequeabot, and constant feedback from the fact-checkers trains the algorithm to focus on statements that are both 'checkable' and interesting.

Another Chequeabot feature now in development matches statements against previous fact-checks, and in some cases against official statistics, in order to automatically generate a draft of a tweet or a post for a human fact-checker to review. The platform will be shared with other fact-checking organisations in South America, and with news organisations interested in political fact-checking.

Two primary approaches to automatic verification are matching statements to previous fact-checks or consulting authoritative sources. A third family of techniques infers credibility from secondary signals.

Checking Against Previous Fact Checks

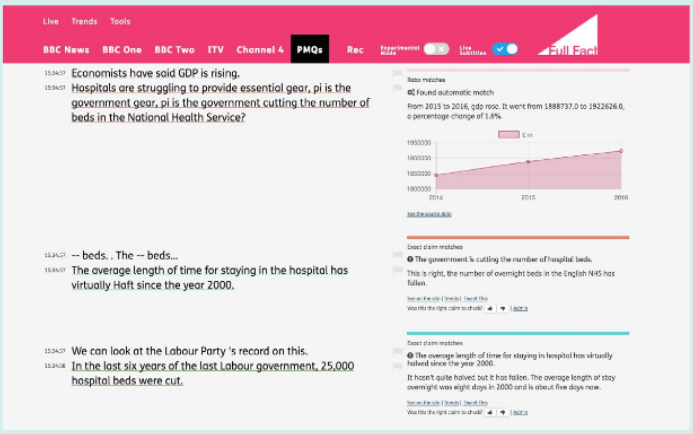
The most effective approach to automatic verification today is to match statements against a library of claims already checked by one or more fact-checking organizations. This leaves difficult questions of judgement to human researchers, using automation to boost their reach and responsiveness when false
claims resurface.

A number of fact-checking outlets are beginning to use this internally as a way to flag repeat offenders. For instance, Full Fact's in-house AFC platform constantly monitors an array of media outlets, as well as Prime Minister's Questions, for claims the group has already checked (see box page 6). Similarly, the Duke Reporters Lab expects to test a system matching more instances of a claim always comes at the expense of accuracy, potentially leading to false positives. To optimise the balance, Full Fact writes custom search queries for each claim it monitors (but is experimenting with machine learning to improve the process). Pablo Fernandez, in charge of AFC efforts at Argentina's Chequeado, argues that human gatekeeping will be required for the foreseeable future:

Right now what we are trying to do is enhance the way fact-checkers work, because natural language processing is not that accurate, [especially] with things where you know there are a lot of grey areas. … Right now we think we have to have a man in the middle.

[11] Share the Facts implements the ClaimReview schema, an open standard for coding the different components of a fact check, such as the claim and the verdict, in a machine-readable way. See https://www.poynter.org/news/google-now-highlighting-fact-checks-search

The UK-based fact-checking charity Full Fact plans to release two AFC tools in 2018, developed with more than £500,000 in foundation support and meant for adoption by fact-checkers around the world. Both tools rely on a monitoring infrastructure that constantly scans major newspapers as well as broadcast news and parliamentary sources, using subtitle feeds as well as text to speech conversion. Designed to help the fact-checkers respond quickly to misinformation, **Live** uses human-tailored searches to scan these sources in real time for statements relating to claims which Full Fact has already investigated. An exact match automatically pulls up the relevant conclusion; in other cases, Live tries to display contextual information such as official statistics. **Trends** is based on the same engine but takes a longer view, offering claim-by-claim reports on the career of individual falsehoods. The purpose is to show fact-checkers whether their efforts have made a difference and help them to target their interventions more strategically.



Second, even subtle changes in the wording, timing, or context of a claim can make it more or less reasonable. A good example can be seen in the fine distinctions fact-checkers had to draw between various versions of the Ł350m Brexit claim, which were 'inaccurate to different degrees' depending on the precise wording.[12]6 Even a perfectly accurate statistic can misinform without the proper context; Babakar offers the example of the UK murder rate, which appears to spike in 2003 because killings by a notorious serial killer were officially recorded that
year.

Checking Against an Authoritative Source

A steeper challenge at the centre of current research is to verify claims against the same kinds of original information sources relied on by human factcheckers. In theory, this has the potential to vastly expand the range of statements which can be checked automatically. But it requires that, having identified a discrete claim to check, the AFC system can recognize the kind of data called for, and that the data are available from an authoritative source in a form the software can use.

For AI researchers, the central problem is to parse statements in terms that make sense to a database. Vlachos says his own efforts do reasonably well with claims that directly name an entity, a property and a numerical value – say, 'Lesotho has a population of 2 million.' But AFC algorithms struggle with even straightforward 'single-predicate' claims that relate multiple elements, like 'Lesotho is the smallest country in Africa.'

In practice, fully automatic verification today remains limited to experiments focused on a very narrow universe of mostly statistical claims. For instance, both Argentina's Chequeado and the UK's Full Fact are developing purpose-built AFC modules designed to match claims about specific public statistics, such as the unemployment or inflation rate, against the official figures. Both groups have campaigned to make more official statistics available as structured data which are friendlier to developers. It is worth noting that access to data tends to be more limited where fact-checking is needed most, in authoritarian environments with few independent media outlets (Graves and Cherubini 2016).

Similarly, the ClaimBuster platform includes a module, still in the early stages of development, which reformulates claims as a question for Wolfram Alpha, a general-interest structured knowledge base. This widens the set of available facts, but in practice only a tiny fraction of statements harvested from real political discourse can be tested this way. Chengkai Li, a professor at UT-Arlington and one of the creators of ClaimBuster, agrees that the most important bottleneck is caused by data:

The big challenge is the lack of data sources. Understanding the claim and formulating the query and sending the query to the source, that's one challenge. But another challenge is the

12 https://fullfact.org/europe/foreign-secretary-and-uk-statistics-authority-350-million-explained

lack of authoritative and comprehensive data. It's not just about the technical solutions, it's about the lack of data quality.

However, Li also notes that taking advantage of structured data sources will require greater sophistication in understanding claims. One approach being tested by his lab is to build up a taxonomy of different kinds of claims, with input from professional fact-checkers, to guide how statements are parsed. Li gives the example of the statement that the United States has 'the highest rate of childhood poverty of any major country on Earth'. Defining a class of claims about 'ranking' would alert the AFC algorithm to look for specific elements like the basis of comparison (child poverty rates), the comparison set (major countries), and so on.

Unstructured and Network Approaches

Another avenue of research involves less structured or "non-reference" approaches to verification (Babakar and Moy 2016). Rather than looking up a specific authoritative reference, these methods search more widely and may rely on a variety of content- or network-related signals to make inferences about the likely truthfulness of a claim.[13]

For instance, Vlachos explains, a way to test the claim that 'Lesotho is the smallest country in Africa' without logically interpreting it is to search for similar language across a large textual source, or across the entire Web. In experiments using Wikipedia as a trusted source and a dataset of 125,000 claims, for example, a team led by one of his students can predict correctly whether a single-predicate claim is supported or refuted (or whether there is not enough evidence) about 25% of the time (Thorne et al. 2018).

A crucial element in strengthening such approaches, and one which can also be used to assist human factcheckers, is stance detection: determining whether a particular document supports the claim in question (see Ferreira and Vlachos 2016). The 'Fake News Challenge' concluded in late 2017 let computer
scientists compare stance detection algorithms using a common library of real-world rumours and news reports from a rumour-tracking project run by journalists. A challenge scheduled for October 2018 will test these methods against more structured AFC techniques in delivering final verdicts about claims.[14]

Other research has focused on interpreting a variety of signals related to content or social context that may speak to credibility. These range from stylistic features, like the kind of language used in a social media post or a supposed news report, to clues based on the network position of a source (the sort of information Google uses to rank search results) or the way a particular claim or link propagates across the internet. (A useful
overview is in Shu et al. 2017.)

Such probabilistic approaches draw on adjacent areas of AI research, like rumour detection, which shift the problem from determining veracity to scoring reliability. This can resemble the kinds of inferences platform companies make in surfacing promising material and 'down ranking' sites or posts associated with problematic sources. In fact, some efforts piggyback on the complex language- and network-analysis capabilities of Google and Bing, using them as inputs to other AFC algorithms (see e.g. Karadzhov et al. 2017).

However, both researchers and practitioners argue that source credibility cannot be a substitute for assessing the factual accuracy of individual statements. One problem is that reliable sources make mistakes. As Vlachos indicates,

The most dangerous misinformation for each of us comes from the sources we trust. Philosophically, I don't want my model's decisions to be affected by the source, even though the source matters. I'm not saying one should never look at it, but we should also have models that ignore that part. Because everybody says incorrect things.

This points to a wider tension in the push for effective large-scale measures to counteract the spread of online disinformation: The impulse to promote trusted institutional sources can threaten pluralism and diversity in online discourse. Babakar, of Full Fact, notes that a mistake from an organization like the Office of National Statistics can do a lot of damage precisely because it is so trusted. She continues,

By upgrading certain sources we are implicitly downgrading others. ... There are cases where a minority publication may be more credible than a national newspaper, for example. My main
question with credibility scores is who might you be unintentionally silencing and are their voices actually vital to the debate?

Discussion

This factsheet has offered an overview of the landscape of automated fact-checking initiatives and research. It documents rapidly growing activity in this area from both academic researchers and professional fact-checking organizations, as well as the consensus within both groups that fully automated fact-checking remains a distant goal. The most promising developments today are in AFC tools that help

[13] One recent paper in this area argued, 'In other words, the important and complex human task of fact checking can be effectively reduced to a simple network analysis problem, which is easy to solve computationally' (Ciampaglia et al. 2015).

[14] See https://sheffieldnlp.github.io/fever

fact-checkers to respond more quickly and effectively to political lies, online rumours, and other forms of misinformation.

Real-world AFC tools are developing rapidly. Supported by foundations, platform companies, and other charitable sources, a handful of fact-checking organizations on different continents have emerged as hubs for developing and implementing automation technologies for the wider global community of political fact-checkers based in news outlets, universities, and civil-society groups. Several outlets are now using automation in a supporting role to help find interesting and important political claims to check. Progress is also being made in matching some claims against previous work; despite limits, this year will see the official launch of new tools to track where
false claims are being repeated and to automatically ,bring up related fact-checks or other relevant information to help fact-checkers intervene quickly.

However, the potential for automated responses to online misinformation that work at scale and don't require human supervision remains sharply limited today. Researchers are exploring both more and less structured approaches to automated verification, reflecting wider divisions in the AI landscape. Despite progress, AFC techniques which emulate humans in comprehending the elements of a claim and checking them against authoritative references are constrained
by both the current science and by a lack of data; researchers suggest one path forward is to build up recognition of different kinds of claims in a gradual and ad hoc way. Another family of techniques assesses the quality of information based on a complex array of network signals, making judgements about a message or its source in ways that may be opaque to humans.
It is unclear how effective various unstructured approaches will prove in responding to different kinds of misinformation, for instance, false claims from political elites as opposed to viral online rumours. These approaches may also be vulnerable to mistakes from reputable sources, and raise difficult questions about protecting open and diverse political expression online.

AFC has been an area of unusually close collaboration between researchers and practitioners. Further progress will depend mainly on two factors: continued financial support for both basic research and realworld experiments, and progress by government and civil society groups in establishing open data standards. Traditional news organizations, whose fact-checking initiatives have larger reach and greater scale, also have much to contribute — and potentially to gain — by becoming more active in this arena.

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The spread of true and false news online

Soroush Vosoughi, Deb Roy and Sinan Aral

FALSE NEWS IS BIG NEWS

Barely a day goes by without a new development about the veracity of social media, foreign meddling in U.S. elections, or questionable science.

Adding to the confusion is speculation about what's behind such developments—is the motivation deliberate and political, or is it a case of uninformed misinformation? And who is spreading the word online—rogue AI bots or agitated humans?

These were among the questions we sought to address in the largest-ever longitudinal study of the spread of false news online. Until now, few large-scale empirical investigations existed on the diffusion of misinformation or its social origins. Studies about the spread of misinformation were limited to analyses of small, ad hoc samples. But these ad hoc studies ignore two of the most important scientific questions: How do truth and falsity diffuse differently, and what factors related to human judgment explain these differences? Understanding how false news spreads is the first step toward containing it. With this research in hand, we can consider the implications of false news on hotly debated issues -- from the regulation of social media sites such as Facebook and Twitter, to social media's role in elections.

Redefining News

The basic concepts of truth and accuracy are central to theories of decision-making [1, 2, 3], cooperation [4], communication [5], and markets [6]. Today's online media adds new dimensions and complexity to this field of study.

There has been a lot of attention given to the impact of social media on our democracy and our politics. In addition to politics, false rumors have affected stock prices and the motivation for large scale investments. Indeed, our responses to everything from natural disasters [7, 8] to terrorist attacks [9] have been disrupted by the spread of false news online.

New social technologies, notably Twitter, Facebook, and photo-sharing apps, facilitate rapid information-sharing and large-scale information "cascades" that can also spread misinformation, or information that is inaccurate or misleading.

But, while more of our access to information and news is guided by these new technologies [10] we know little about their exact contribution to the spread of falsity online. Anecdotal analyses of false news by the media [11] are getting lots of attention, but there are few large-scale empirical investigations of the diffusion of misinformation or its social origins.

Current research has analyzed the spread of single rumors, like the discovery of the Higgs boson [12], or the Haitian earthquake of 2010 [13]. Others have studied multiple rumors from a single disaster event, like the Boston Marathon bombing of 2013. Theoretical models of rumor diffusion [14], or methods for rumor detection [15], credibility evaluation [16, 17], or interventions to curtail the spread of rumors, can also be found.

Yet, almost no studies comprehensively evaluate differences in the spread of truth and falsity across topics nor do they

RESEARCH HIGHLIGHTS

We investigated the differential diffusion of all the verified, true and false news stories distributed on Twitter from 2006 to 2017. The data comprise approximately 126,000 cascades of news stories spreading on Twitter, tweeted by about 3 million people over 4.5 million times.

We classified news as true or false using information from six independent fact-checking organizations that exhibited 95% -98% agreement on the classifications.

Falsehood diffused significantly farther, faster, deeper, and more broadly than the truth in all categories. The effects were most pronounced for false political news than for news about terrorism, natural disasters, science, urban legends, or financial information.

Controlling for many factors, false news was 70% more likely to be retweeted than the truth.Novelty is an important factor. False news was perceived as more novel than true news, which suggests that people are more likely to share novel information.

Contrary to conventional wisdom, robots accelerated the spread of true and false news at the same rate, implying that humans, not robots, are more likely responsible for the dramatic spread of false news.

examine why false news may spread differently than the truth. That
was our goal.

To understand the spread of false news, our research examines the diffusion of true and false news on Twitter.

Fact-checking the Rumors

A rumor cascade begins on Twitter when a user makes a statement about a topic in a tweet, which could include written text, photos, or links to articles online. Other users propagate the rumor by retweeting it. A rumor's diffusion process can be characterized as having one or more "cascades," which we define as "a rumor-spreading pattern that exhibit an unbroken retweet chain with a common, singular origin."

For example, an individual could start a rumor cascade by tweeting a story or claim with an assertion in it, and another individual independently starts a second cascade of the same rumor that is completely independent of the first, except that it pertains to the same story or claim.

Our investigation looked at a highly comprehensive dataset of all of the fact-checked rumor cascades that spread on Twitter from its inception in 2006 until 2017. The data include approximately 126,000 rumor cascades spread by about 3 million people over 4.5 million times.

The next problem we addressed was how to fact-check the tweets. All rumor cascades were investigated by six independent fact-checking organizations: snopes.com, politifact.com, factcheck.org, truthorfiction.com, hoax-slayer.com, and urbanlegends.about.com. Then, we parsed the title, body, and verdict (true, false or mixed) of each rumor investigation reported on their websites, and automatically

We quantified the cascades into four categories:

1. Depth: The number of retweet hops from the origin tweet over time;
2. Size: The number of users involved in the cascade over time;
3. Maximum breadth: The full number of users involved in the cascade at any depth;
4. Structural virality: A measure that interpolates between content spread through a single, large broadcast and content spread through multiple generations, with any one individual directly responsible for only a fraction of the total spread. [19]

collected the cascades corresponding to those rumors on Twitter. The result was a sample of rumor cascades whose veracity had been agreed upon by these organizations 95% to 98% of the time.

Our results were dramatic: Analysis found that it took the truth approximately six times as long as falsehood to reach 1,500 people and 20 times as long as falsehood to reach a cascade depth of ten.

As the truth never diffused beyond a depth of ten, we saw that falsehood reached a depth of 19 nearly ten times faster than the truth reached a depth of ten. Falsehood also diffused significantly more broadly and was retweeted by more unique users than the truth at every cascade depth.

The Virality and Novelty of False News

In particular, we determined that false political news traveled deeper and more broadly, reached more people, and was more viral than any other category of false information. False political news also diffused deeper more quickly, and reached more than 20,000 people nearly three times faster than all other types of false news reached 10,000 people.

Furthermore, analysis of all news categories showed that news about politics, urban legends, and science spread to the most people, while news about politics and urban legends spread the fastest and were the most viral. When we estimated a model of the likelihood of retweeting we found that falsehoods were fully 70% more likely to be retweeted than the truth.

What could explain such surprising results? One explanation emerges from information theory and Bayesian decision theory: People thrive on novelty. As others have noted, novelty attracts human attention [20], contributes to productive decision making [21], and encourages information-sharing [22]. In essence, it can update our understanding of the world. When information is novel, it is not only surprising, but also more valuable--both from an information theory perspective (it provides the greatest aid to decision-making), and from a social perspective (it conveys social status that one is 'in the know,' or has access to unique 'inside' information).

To check the results, we tested whether falsity was more novel than the truth, and whether Twitter users were more likely to retweet information that was more novel. The tests confirmed our findings. Numerous diagnostic statistics and checks validated our results and confirmed their robustness. Moreover, in case there was concern that our conclusions about human judgment were biased by the presence of bots in our analysis, we employed a sophisticated bot-detection algorithm [23] to identify and remove all bots before running the analysis. When we added bot traffic back into the analysis, we found that none of our main conclusions changed—false news still spread farther, faster, deeper, and more broadly than the truth in all categories of information.

Although the inclusion of bots accelerated the spread of both true and false news, it affected their spread roughly equally. This suggests that contrary to what many believe, false news spreads farther, faster, deeper, and more broadly than the truth
because humans, not robots, are more likely to spread it.

Significance and Ramifications

There are enormous potential ramifications to these results. False news can drive the misallocation of resources during terror attacks and natural disasters, the misalignment of business investments, and can misinform elections. And while the amount of false news online is clearly increasing, our scientific understanding of how and why false news spreads is still largely based on ad hoc rather than large-scale, systematic analyses. Our analysis sheds new light on these trends and affirms that false news spreads more pervasively online than the truth. It also upends conventional wisdom about how false news spreads.

Though one might expect network structure and the characteristics of users to favor and promote false news, the opposite is true. What drives the spread of false news, despite network and individual factors that favor the truth, is the greater likelihood of people to retweet falsity.

Furthermore, while recent testimony before congressional committees on misinformation in the U.S. has focused on the role of bots in spreading false news [24], we conclude that human behavior contributes more to the differential spread of falsity and truth than automated robots do. This implies that misinformation containment policies should emphasize behavioral interventions, like labeling and incentives, rather than focusing exclusively on curtailing bots.

We hope our work inspires more large-scale research into the causes and consequences of the spread of false news as well as its potential cures.

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The man who studies the spread of ignorance

Georgina Kenyon

In 1979, a secret memo from the tobacco industry was revealed to the public. Called the Smoking and Health Proposal, and written a decade earlier by the Brown & Williamson tobacco company, it revealed many of the tactics employed by big tobacco to counter "anti-cigarette forces".

In one of the paper's most revealing sections, it looks at how to market cigarettes to the mass public: "Doubt is our product since it is the best means of competing with the 'body of fact' that exists in the mind of the general public. It is also the means of establishing a controversy."

This revelation piqued the interest of Robert Proctor, a science historian from Stanford University, who started delving into the practices of tobacco firms and how they had spread confusion about whether smoking caused cancer.

The tactics of big tobacco to obscure the facts of smoking's harmful effects led Robert Proctor to create a new word (Credit: Getty Images)

Proctor had found that the cigarette industry did not want consumers to know the harms of its product, and it spent billions obscuring the facts of the health effects of smoking. This search led him to create a word for the study of deliberate propagation of ignorance: agnotology.

It comes from agnosis, the neoclassical Greek word for ignorance or 'not knowing', and ontology, the branch of metaphysics which deals with the nature of being. Agnotology is the study of wilful acts to spread confusion and deceit, usually to sell a product or win favour.

"I was exploring how powerful industries could promote ignorance to sell their wares. Ignorance is power… and agnotology is about the deliberate creation of ignorance.

"In looking into agnotology, I discovered the secret world of classified science, and thought historians should be giving this more attention."

The 1969 memo and the tactics used by the tobacco industry became the perfect example of agnotology, Proctor says. "Ignorance is not just the not-yet-known, it's also a political ploy, a deliberate creation by powerful agents who want you 'not to know'."

To help him in his search, Proctor enlisted the help of UC Berkeley linguist Iain Boal, and together they came up with the term – the neologism was coined in 1995, although much of Proctor's analysis of the phenomenon had occurred in the previous decades.

Balancing act

Agnotology is as important today as it was back when Proctor studied the tobacco industry's obfuscation of facts about cancer and smoking. For example, politically motivated doubt was sown over US President Barack Obama's nationality for many months by opponents until he revealed his birth certificate in 2011. In another case, some political commentators in Australia attempted to stoke panic by likening the country's credit rating to that of Greece, despite readily available public information from ratings agencies showing the two economies are very different.

Proctor explains that ignorance can often be propagated under the guise of balanced debate. For example, the common idea that there will always be two opposing views does not always result in a rational conclusion. This was behind how tobacco firms used science to make their products look harmless, and is used today by climate change deniers to argue against the scientific evidence.

The spread of ignorance is as relevant today as it was when Proctor coined his term (Credit: Thinkstock)

"This 'balance routine' has allowed the cigarette men, or climate deniers today, to claim that there are two sides to every story, that 'experts disagree' – creating a false picture of the truth, hence ignorance."

For example, says Proctor, many of the studies linking carcinogens in tobacco were conducted in mice initially, and the tobacco industry responded by saying that studies into mice did not mean that people were at risk, despite adverse health outcomes in many smokers.

A new era of ignorance

"We live in a world of radical ignorance, and the marvel is that any kind of truth cuts through the noise," says Proctor. Even though knowledge is 'accessible', it does not mean it is accessed, he warns.

"Although for most things this is trivial – like, for example, the boiling point of mercury – but for bigger questions of political and philosophical import, the knowledge people have often comes from faith or tradition, or propaganda, more than anywhere else."

When people do not understand a concept or fact, they are prey for special interest groups who work hard to create confusion (Credit: Thinkstock)

Proctor found that ignorance spreads when firstly, many people do not understand a concept or fact and secondly, when special interest groups – like a commercial firm or a political group – then work hard to create confusion about an issue. In the case of ignorance about tobacco and climate change, a scientifically illiterate society will probably be more susceptible to the tactics used by those wishing to confuse and cloud the truth.

Consider climate change as an example. "The fight is not just over the existence of climate change, it's over whether God has created the Earth for us to exploit, whether government has the right to regulate industry, whether environmentalists should be empowered, and so on. It's not just about the facts, it's about what is imagined to flow from and into such facts," says Proctor.

Making up our own minds

Another academic studying ignorance is David Dunning, from Cornell University. Dunning warns that the internet is helping propagate ignorance – it is a place where everyone has a chance to be their own expert, he says, which makes them prey for powerful interests wishing to deliberately spread ignorance.

My worry is not that we are losing the ability to make up our own minds, but that it's becoming too easy to do so – David Dunning

"While some smart people will profit from all the information now just a click away, many will be misled into a false sense of expertise. My worry is not that we are losing the ability to make up our own minds, but that it's becoming too easy to do so. We should consult with others much more than we imagine. Other people may be imperfect as well, but often their opinions go a long way toward correcting our own imperfections, as our own imperfect expertise helps to correct their errors," warns Dunning.

US presidential candidate Donald Trump's solutions that are either unworkable or unconstitutional are an example of agnotology, says Dunning (Credit: Getty Images)

Dunning and Proctor also warn that the wilful spread of ignorance is rampant throughout the US presidential primaries on both sides of the political spectrum.

"Donald Trump is the obvious current example in the US, suggesting easy solutions to followers that are either unworkable or unconstitutional," says Dunning.

So while agnotology may have had its origins in the heyday of the tobacco industry, today the need for both a word and the study of human ignorance is as strong as ever.

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Performance analysis of fact-checking organizations and initiatives in Europe: a critical overview of online platforms fighting fake news

Tanja Pavleska, Andrej Školkay, Bissera Zankova, Nelson Ribeiro, Anja Bechmann

Abstract

This study represents the first work integrating theory and practice from the field of fact-checking and combating fake news into a novel methodology for performance analysis of fact-checking organizations. It provides important insights into the efficiency and effectiveness of European fact-checking organizations. However, it is relevant for any fact-checking organization across the Globe. The methodology includes the development of a scheme of performance indicators and the definition of a taxonomy of fact-checking systems, supported by an existing conceptual framework. The practical part consists of piloting of the methodology into a set of implemented and working online platforms. The results from the study reveal huge space for improvements of the workflows and the functionality of fact-checkers and lead to the extraction of a set of recommendations in this regard.

Keywords: *fact-checking, indicators, information disorder, methodology, efficiency, effectiveness*.

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1. Introduction

The advent of the information and communication technologies opened up a myriad of opportunities for people to create and disseminate content through multiple services and platforms. However, not always actors take advantage of this bright side of the Internet. In fact, very often they create and spread (purposefully or not) content of dubious veracity or unverified origin. This type of content is what has popularly become classified as "fake news". Fake news is often simply defined as *spreading false content for political purposes*. However, from a broader perspective, fake news may refer to rumors, gossip or generally, information that is not checked, is not objective and in the worst case, is completely misleading. The most controversial property of fake news is their potential to influence how society as a whole or groups within society behave and perceive reality. This not only impacts the quality of contents on the web, but undermines the trust of the users in the platforms, in the applications and in the other users creating and sharing content. As reported in the Reuters Institute Digital News Report[15] (Nielsen 2017:10), only a quarter (24%) of the respondents think *"social media do a good job in separating facts from fiction, compared to 40% for the news media."* The data cited points out that "users feel the combination of a lack of rules and viral algorithms are encouraging low quality and allowing fake news to spread quickly." In that regard, Vertesi (2016) also calls for the need to pay more attention to the topic of digital information technology in daily life and in knowledge work within science and technology studies.

These developments in the online world, however, do not imply that traditional media are immune to fake news reporting (Edelman Trust Barometer 2018). Media presentation of reality and journalism work have in particular been largely questioned because distrust in media as a factor for social progress is on the rise. Thus, it is of little surprise that we have witnessed the emergence of dozens of fact-checking and debunking organizations in Europe over the last several years (Stencel 2017; Brandtzaeg and Følstad 2017; Graves and Cherubini 2016).

Although many journalistic articles and academic studies report on some aspects of these activities, tools, organizations and their work[16], there is no study, let alone a holistic one, that either determines factors for measuring performance or inspects the influence of those factors on any aspect of the performance of fact-checking efforts. Yet, the relevance of this particular issue seems to be approachable by a multitude of disciplines:

- Economically, one can speak about the efficacy of the efforts, their social impact, return of investment, value for money, effect on consumer behavior, risk

[15] https://goo.gl/7jkJQ1

[16] See list of recent studies in Ordway, 2017; report on activities in Wardle and Derakhshan, 2017; list of tools in Stearns and Kille, 2015. There also is Open bibliography of relevant, evidence-based research on problems of misinformation available at Google docs that lists around 150 sources.

assessments of potential failures, or their contribution to the media development in general.

- Politically, one may concentrate on investigating either general questions like: Which entities deserve public/civil support and how is this provided in the most transparent and sustainable way? What are the practical implication of their functioning? or some more specific questions, such as: What is the correlation between information disorder and the political developments in a country? How can regulation impact and be impacted by these efforts? How are fundamental rights affected by the success or failure of these initiatives?

- Psychologically and inter-disciplinary, investigating these issues may provide deeper and novel insights into the human bias phenomena, the role of social behavior and groupthink (echo chambers) and the formation of social networks in the proliferation of a certain piece of information, the urge to lower the human cognitive dissonances as a factor in the formation of information disorder, etc.

Research has, nevertheless, provided arguments for negative perceptions on the general usefulness and trustworthiness of these organizations by social media users (Brandtzaeg and Følstad 2017). Economic theory suggests that any organization pursuing special goals must apply performance measurement to follow its progresses towards the achievement of these goals (Epstein et al. 2010). As Caruntu and Caruntu (2012) point out, the measurement of the economic and financial performance has started to receive even greater importance than before. It is therefore recommended that companies, organizations, or any goal-oriented project use a combination of financial, economic and non-financial indicators to measure their performance.

This paper aims at developing a methodology for performance analysis of fact-checking and debunking organizations[17]. Europe as a case study was chosen to provide a counter-weight to the US dominated discussion on fake news, but also as a market with historically strong regulatory approaches to information infrastructure (e.g. Privacy regulation). However, the same approach is applicable to a non-European context as well. The methodology integrates the development of a scheme of performance indicators and the definition of a taxonomy of fact-checking systems, supported by an existing conceptual framework. An empirical study is then performed and piloted into a set of implemented and working online platforms to provide a proof of concept of the methodology and, moreover, to allow for the extraction of a set of recommendations for performance evaluation and improvement of the fact-checking processes and organizations. The results from this research are analyzed and structured into a proposal for a general research and assessment framework of the performance of fact-checking organizations.

The next section introduces the basic concepts and definitions employed throughout the work in this study. Related work and state of the art are also part of that section to support the overview of interconnected initiatives. Basic features of fact-checking organizations are elaborated in Section three. Section four proceeds with the methodology of work, introducing the guiding principles for designing and carrying out the theoretical and the empirical parts of the study. An empirical study is then built and its piloting in 50 EU fact-checking organizations is discussed: the discussion moves from the description of the field work through the presentation and the analysis of the results, to the final recommendations and conclusions. The paper wraps up with pointers to future directions on the work on developing trustworthy information infrastructure, of which fact-checking organizations are becoming an integral part.

2. Background Concepts and Related Work

Developing and arguing over a case concerned with fake news (see Rubin et al. 2015), hoaxes, fact-checking, clickbait (monetization and traffic attraction), is often encumbered by the absence of a conceptual common ground on the concepts underlying that context. Some suggest novel terms, such as *attention hacking* (Marwick and Lewis 2017). Others introduce additional terms to come to consensus on the definition on fake news, such as *information disorder*, *information pollution* or *disinformation campaigns* (Wardle and Derakhshan 2017:5). Others again prefer more general terms, such as *distribution of harms*, as coined by Rubin et al. (2015). Bounegru et al. (2017:5) argue that "*fake news is not just another type of content that circulates online, but that it is precisely the character of this online circulation and reception that makes something into fake news.*" According to Marwick and Lewis (2017:44) it "*generally refers to a wide range of disinformation and misinformation circulating online and in the media.*" In media markets' theories fake news is defined as "*distorted signals uncorrelated with the truth*" that emerge in the market because it is "cheaper to provide than precise signals" (Allcott and Gentzkow 2017). From a political economy perspective, fake news has a long history that is bound to the commodification of journalism in a market economy (Hirst 2017).

However, there seems to be a consensus that the current communication environment within and between many countries worldwide is much more politically and socially

[17] From this point on, by 'fact-checking' we imply 'fact-checking and debunking'. For clarity and compactness, only 'fact-checking' will be used.

challenged than in the past periods of grey[18] and black[19] propaganda, conspiracy theories and fabricated content[20]. Although Collins Language has announced „fake news" on the 2017 Word of the Year shortlist, some researchers like Wardle and Derakhshan (2017:6) oppose the use of the term "fake news". In their view, it is a conceptually inadequate and politically abused term. In the same vein, Marwick et al. (2017) call for a larger focus on *attention* and *frame hacking*, providing a perspective that is more oriented towards data infrastructure manipulation sensitivity rather than vague discussions on veracity, truth and objectivity. Therefore, Wardle and Derakhshan introduce a new conceptual framework, defining what they prefer to call *the key terminology of information disorder*: misinformation, disinformation and malinformation, and distinguishing between information that is false and information that is designed to harm. In this paper, we follow Wardle and Derakhshan's conceptual framework for information disorder and adopt the following definitions:

Definition 1: Misinformation occurs when false information is shared, but no harm is meant.

Definition 2: Disinformation is when false information is knowingly shared to cause harm.

Definition 3: Malinformation is when genuine information is shared to cause harm, often by moving information designed to stay private into the public sphere.

Clearly, fake news can be of a detriment to the social momentum the Internet is gaining. Moreover, it can equally bring harm to the public as any other type of harmful content. Recognizing this, a political intervention was undertaken by the EU in this regard: European External Action Service East Stratcom Task Force that ran the 'EU vs Disinformation' campaign[21]. The Task Force was established after the EU Heads of State and Government stressed "the need to challenge Russia's ongoing disinformation campaigns in March 2015". Between September 2015 and November 2017, the Task Force with partners have identified and debunked over 3.500 disinformation cases. Despite these concrete efforts, research on whether fact-checking is effective at correcting false beliefs (and under what conditions) has been contradictory at times (Chan et al. 2017). Nyhan and Reifle (2015) argue that misinformation can be very difficult to correct and may have lasting effects even after it is discredited. Therefore, only debunking it is not sufficient - it must be replaced by an alternative causal explanation (Nyhan and Reifle 2015).

Some scholars implicitly or explicitly point to the contextual and cultural dimensions of spreading hoaxes and fake news[22]. Different interests are involved in the process, and speech contexts bare a lot of ambiguity. In order to understand properly the digital discourse, it may be important to identify and elucidate the practices of communication that go well into the need for historical, cultural, contextual and comparative analysis (Bird 2003). This is in part a global issue that requires a global approach. Therefore, several global tools have been developed by the IT companies to verify and reestablish trusted sources of online information, such as the Google fact-checking and the Facebook repost-verification. Rather than establishing the veracity of a certain piece of information, these tools only offer news and facts on more aspects of the piece of information, allowing users themselves to decide on 'what would be their own truth'. Furthermore, tech-industry players may not have their interest tuned to laying out a critical approach to the use and manipulation of data infrastructures, or to ensure transparency of such use. As a result, very often they may even defeat the purpose of fact checking just by their nature of operation. For instance, in late 2017, fake news stories were accidentally promoted with prominent ads served by Google on websites like PolitiFact and Snopes, which are fact-checking sites created precisely to dispel such falsehoods (Wakabayashi and Qiu 2017). Hence, it is not surprising that the public in many countries is also worried about the proliferation of fake news across the different media and the rise of distrust in the news in general (Cellan-Jones 2017; Newman et al. 2017).

Considering the variety of stakeholders concerned by the problem, several initiatives and organizations were also established with the common objective of raising awareness and addressing challenges related to trust and truth in the digital age: the NGO *First Draft*[23] (in 2016), global *Partner Network* of journalism (e.g. BBC, Reuters), human rights (e.g. Amnesty International) and technology (e.g. YouTube) organizations, to name a few. To join these efforts at a European level, in November 2017 the European Commission (EC) announced its next step in the fight against fake news: setting up a High-Level Expert Group and launching a public consultation[24]. Interestingly, the action of the EC also includes

[18] Information of questionable origin that is never sourced and whose accuracy is doubtful

[19] False information and material that purports to be from a source on one side of a conflict, but is actually from the opposing side. It is typically used to vilify, embarrass, or misrepresent the enemy.

[20] Invented or produced some false messages in order to deceive someone.

[21] https://euvsdisinfo.eu/about/

[22] http://www.worldvaluessurvey.org/WVSContents.jsp?CMSID= Findings

[23] https://firstdraftnews.com/about/#network

[24] http://europa.eu/rapid/press-release_IP-17-4481_en.htm

"assessment of measures already taken by platforms, news media companies and civil society organizations to counter the spread of fake news online, as well as positions on the roles and responsibilities of the relevant stakeholders" (Ibid.). However, no details have been disclosed about the methodological framework to be applied and whether effectiveness and efficiency of fact-checking initiatives will fall within the scope of the evaluation.

Some EU member states had already taken measures to combat information disorder. For example, the Czech Republic set up a specialist "anti-fake news" police unit called Centre Against Terrorism and Hybrid Threats, which have been operating since 2017. Both Italian and Slovak police announced fight against fake news in January 2018. Simultaneously, Sweden engaged in plans to create a new public authority tasked with countering disinformation and boosting the population's resilience in the face of possible influence operations, called "psychological defense" (psykologiskt försvar) authority. Similarly, in January 2018 the United Kingdom revealed plans to establish a new "national security communications unit" to curb the presence of hoax news stories online and stop social media campaigns from foreign adversaries. These initiatives have currently no special institutional or legal background. A debate could be open here on whether any effort to make them institutional would result in approval by the public and what repercussions would it have on human rights, national security and public safety.

3. Characteristics of fact-checking organizations

There is no single definition of fact-checking organizations summarizing their basic features. A variety of approaches among scientists exist to determine and describe these organizations. By and large scientists take into account the different traits and features to devise their models of fact-checking organizations. Thus, a recent study by Brandtzaeg and Følstad (2017) divides the universe of fact-checking services into three general categories based on their areas of concern: 1) political and public statements in general; 2) online rumors and hoaxes and 3) specific topics, controversies. particular conflicts or narrowly scoped issues and events. Most recent data counted 137 active fact-checking projects around the world - up from 114 in early 2017. A third of them is located in the USA (Stencel 2017). In Europe alone, 34 permanent sources of political fact-checking have been identified as active in 20 different European countries, from Ireland to Turkey (Graves and Cherubini 2016). These organizations are categorized in terms of their mission and their methods. By this categorization, Graves and Cherubini found that fact-checking outlets occupy a spectrum between *reporters*, *reformers* and a third, overlapping category including organizations which have cultivated a role as independent *experts*.

Fact checkers around the globe have also formed an entire professional network. The International Fact-Checking Network (IFCN) is a unit of the Poynter Institute dedicated to bringing together fact-checkers worldwide. The IFCN was launched in September 2015 to support fact-checking initiatives by promoting best practices and exchanges among organizations in this field. The association also adopted a Code of principles in 2016[25]. It addresses *"organizations that regularly publish nonpartisan reports on the accuracy of statements by public figures, major institutions, and other widely circulated claims of interest to society."* The principles represent professional commitments to nonpartisanship and fairness, transparency of sources, transparency of methodology and open and honest corrections. These comprise the principles and values on which the activities of fact-checking organizations are premised; notwithstanding the fact that these organizations are similar to journalistic and other associations (like non-governmental organizations), they have not adopted criteria for the self-assessment of their performance. Moreover, only part of the European fact-checkers joined this global network.

Analyzing more in depth these organizations, some scholars explore the methodology they use. Rubin et al. (2015) provide a map of the current landscape of veracity (or deception) assessment methods, their major classes and goals. Two major categories of methods exist: 1. *Linguistic Approaches* in which the content of deceptive messages is extracted and analyzed to associate language patterns with deception; and 2. *Network Approaches* in which network information, such as message metadata or structured knowledge network queries can be harnessed to provide aggregate deception measures. Interestingly, most of the insights on deception research originate from disciplines without detection automation in mind.

Despite their diversity, the functional characteristics of fact-checking organizations are denoted by their names. Experts have (rightly) observed that, while mis/dis/mal- information spreading is mainly dominated by very active users, the fact-checking is still a more grass-roots activity (Chengcheng et al. 2016). Furthermore, as Rubin and Conroy (2012) and Wineburg et al. (2016) demonstrate, one serious drawback of the fact-checking and debunking activities is related to the fact that human observers perform poorly in the detection of fake news, and machines even slightly outperform humans on certain tasks. The mathematical modeling of information diffusion processes showed that there is a threshold value for the fact-checking probability that guarantees the complete removal of the hoax from the network which does not depend on the spreading rate, but only on the gullibility and forgetting probability (Tambuscio et al. 2015). This also raises a series of fundamental issues: how efficient are the tools and

[25] https://www.poynter.org/international-fact-checking-network-fact-checkers-code-principles

platforms aimed to combat information disorder? Which factors affect their performance and how to evaluate this in the first place?

Next, we move to defining the methodology of work that will help us pursue the goal of answering the above-stated questions.

4. Methodology of work

Pertinent to the definition of a proper set of performance indicators is the analysis of the contextual traits of the systems/organizations where the evaluation is to be performed. Unlike most of the approaches that pre-define the performance indicators based on the needs of their research objectives, we are extracting the baseline of the methodology from the existing frameworks and reports on the performance issues of two sectors: governmental and non-governmental. Combining the insights of the analysis of the two sectors not only enables us to extract a general set of indicators that brings forward the advantages of both sectors, but also allows these efforts to complement each other in a way that can improve both the evaluation and the performance of the organizations.

As most of the fact-checking organizations are in essence non-governmental, we first analyze and extract the relevant performance indicators for non-government sector, and then complement it with the insights from other contexts. This is shown in the following subsection.

In addition to defining performance indicators, an initial survey was also designed containing a basic set of questions addressing the identified indicators. This survey was piloted in several fact-checking organizations. In parallel, unstructured interviews were carried out with experts that are directly involved in the implementation of the fact-checking methodology of these organizations. Both types of feedback (from the survey and from the interviews) enabled us to perform a second iteration of improvements of our methodology and progress towards defining a more relevant and granular set of indicator-related questions for the empirical study provided in Section 5. A conceptual framework was also adopted to guide the structure of the elaborated issues and adjusted to the context of fact-checking in order to ensure the highest relevance of this work among the efforts for combating information disorder. To verify the relevance, a basic taxonomy of fact-checking systems was also developed as part of the methodology.

4.1. Developing performance indicators

It becomes clear by now that the introduction of performance indicators and metrics allows an organization to build a holistic quality management system. Although measuring performance may come once policies, procedures and feedback mechanisms are adopted and clarified, performance indicators can also be introduced in portions, using a small number at a time with the strategic goal to come to the foreseen outcomes. That is also the logic behind the development of indicators followed in this work.

4.1.1 Performance indicators relevant for non-governmental organizations

Scriven (1967) was among the first researchers who discerned the bifurcated role of evaluation: its formative and summative nature. The formative evaluation pursues the provision of useful information to the team, with team improvement as the ultimate goal. et al. Chianca (Chianca 2005) also calls this type of evaluation *process evaluation*. For the purpose of this study, the process is represented by the indicator **internal coordination.**

Summative evaluation, on the other hand, is performed to provide information to the decision makers that run the team, as well as to potential users who judge the value or merit of the program in relation to important criteria. Scriven (1991) finds the two types of evaluation are interwoven – on a practical scale above all. When it comes to NGOs, fact-checking organizations notwithstanding, their goal of *pursuing social change* makes them to predominantly function as natural open systems, where performance is highly dependent on and sensitive to instability and rapid change in the external environment (Scott 1987; Fowler et al. 1992). We recognize this crucial interaction between the outside environment and the internal organization setting and enlist **external coordination** as another indicator relevant for the evaluation of performance.

Clearly, performance of non-governmental organizations can be evaluated with respect to the accomplishment of projects' goals on the one hand and, on the other, with respect to their overall societal impact. However, as many researchers have noted, there is a pervasive problem in that the organizations' monitoring and evaluation are mainly concentrated on expenditure, activities and outputs, but not on the effects and impacts of the organizations' work, e.g. on humans, society, environment, etc. (Fowler 1997; Riddell et al. 1997; Roche 1999). In the most comprehensive overview of NGO impact and impact evaluation methods to date, Riddell et al. (1997) looked at evidence from 60 separate reports of 240 projects undertaken in 26 developing countries. The authors report that (confirmed by data and interviews): *in spite of growing interest in evaluation, there is a lack of reliable evidence on the impact of NGO development projects and programs."* Thus, **tracking impact** is an important indicator to address in the process of performance evaluation.

Despite the objective to track their impact, Fowler has argued that the *"limitations of the instruments that NGOs use to monitor, evaluate and review"* are one reason why NGOs have not been able to substantiate their achievements (Fowler 1997:160). There has been a lot of argument over the value of Logical Frameworks as planning and monitoring tools (Wallace et al. 1997). Logical Frameworks have been useful in encouraging the identification of indicators at the planning stage, but much less so in ensuring their actual use during project monitoring or evaluation (Davies 1997). In practice, the widespread focus on *identification* of indicators reflects a bias towards planning rather than monitoring and evaluation that is built into most NGOs, and other agencies. **Tracking progress** is thus an important part of the continuous performance awareness.

Very often NGOs set the scene for anticipating exceedingly high expectations of what can be achieved (Davis 2001). It is widely recognized that the achievements of many objectives, such as empowerment, institutional strengthening and the development of civil society, are difficult to define in advance. Hence, **clarity of objectives** is another indicator relevant for the performance evaluation of fact-checking organizations.

All of the aspects discussed above require the involvement of stakeholders in the elaboration of evaluation criteria, which should be an ongoing process. Such method also presupposes a high degree of transparency of the organization's activities. This is especially relevant for fact-checking organizations where absence of transparency has been detected as a major issue that affects the stakeholders' perception of the organizations' trustworthiness (Brandtzaeg and Følstad 2017). Therefore, **accounting for transparency** (of the methodology used, funding sources, etc.) is a factor we are enlisting in the set of performance indicators.

Addressing the identified set of indicators in the appropriate manner allows for a feedback loop to be established between the inputs and the outputs of the organizations' quality management system, enabling the introduction of necessary measures into the operations and the functions of the organization and the achievement of desirable goals. Nevertheless, NGOs exist in an environment that exhibits contextual traits which are not inherently present within the NGOs' structure and management, but are interlocked in the communication pathways with these external systems. Such are, for example, the government-related systems, whose presence brings additional issues, but also facilitates the coping with some inherently non-governmental issues. The next section introduces such indicators that emerge from the interactions between the two sectors.

4.1.2. Performance indicators from governmental contexts

The choice of the objectives of a system/organization is deemed critical for the governmental sector as well. In the context of governmental performance, *indicators' systems provide a systematic collection of information to measure and monitor particular activities* (OECD 2008). They can serve a variety of specific objectives, such as: allocation and control of resources, quality evaluation, cost, coverage, transparency and communication with citizen stakeholders, efficiency evaluation, etc. (Ibid.) As revealed by OECD in its Working paper N5[26] (on promoting performance using indicators in enhancing the effectiveness of sub central spending), indicators are not static and should be viewed as residing in a dynamic and collaborative context (OECD 2008). Certainly, this stands for NGOs-relevant indicators too, but also for any organization residing in a human-centric context. In a governmental context, performance indicators can be used to: establish the current organization's performance; measure improvement over time; set targets to motivate continuous improvement; and as part of a self-assessment which could be included in third party verification.

In addition to external evaluation, self-assessment is a very important part of the continuous performance evaluation both on a short term and on a long term basis. The self-assessment criteria can be adopted by the organization as a result of an internal discussion with the staff and/or an external discussion with stakeholders. Furthermore, **self-assessment** is an important part of tracking the progress of the performance. It encourages the team's involvement and responsibility and enables it to reflect on the role and contribution to the process of any of the group. Thus, self-assessment glues most of the other performance indicators together. In our empirical study we also pay special attention to self-assessment.

When speaking of governmental sector, it is inevitable to touch upon regulatory frameworks and policies. In the context of performance evaluation, the OECD Framework for Regulatory Policy Evaluation was devised to assist countries in evaluating the process of their regulatory policy (OECD 2014). In addition, it recommends an overarching method of evaluating performance based on data and information on the design, implementation and results. Thus, it becomes important to assess the **alignment between the regulatory policies** that are at the intersection of the state-responsibility and the NGOs' functionality.
Some obstacles to the proper application of this approach within NGOs can be the identification of the relevant outcomes which, as stated before, can be vague or too ambitiously planned. However, establishing the connection among the

[26] https://www.oecd.org/tax/federalism/40832141.pdf

sequence of inputs, activities, outputs and outcomes is only a logical way to assess any organizational performance. In that sense, the choice of proper indicators contributes to enhancing the efficiency and effectiveness of an objective by reducing information asymmetries which exist among the various management levels and encouraging performance improvements by altering the incentives for carrying out the work for achieving the planned goals. Thus, **incorporating incentives** into the design of an indicator scheme is not even optional. Incentives are inevitable, regardless of whether their implementation is implicit or explicit to achieving the objectives. Therefore, an incentives policy into the organizations' work is the final performance indicator we are enlisting in the indicators' scheme.

Among the well-established performance indicators, **effectiveness** and **efficiency** are two broad categories used to evaluate the genuine advancement of the organizations' work. While effectiveness indicators measure how much targets are reached and relate actual to expected values, efficiency indicators, measure how "well" resources (like people, machines and money) are deployed to produce a given output (like products, services and profit). Similar as for the non-governmental organizations, the accomplishment of outcomes is naturally considered the most relevant indicator for measuring effectiveness in this context as well.

These two broad indicators' categories are also adopted in our approach and embedded into the empirical study. Moreover, they integrate (either implicitly or explicitly) all of the indicators identified in this section and unify them under the common term of *performance indicators.* For instance, the presence of incentives is relevant for both efficient operation and effective outcomes. The same stands for most of the other performance indicators.

To summarize, in addition to *internal coordination, external coordination, tracking impact, tracking progress, clarity of objectives* and *accounting for transparency*, the complementary analysis of the governmental sector allowed for the identification of *self-assessment procedures* and *incentives policy* as additional indicators. The analysis of all of the identified indicators are either implicitly or explicitly embedded into the analysis of the *effectiveness* and *efficiency* indicators whose maximization is the most desirable performance aspect.

4.2. The WDF Conceptual framework

To establish a common ground with the approaches taken or yet to be taken in the field, but also to ensure a conceptual rigor, our work follows a well-defined conceptual framework. As underlying premises for studying the combating of information disorder by the fact-checking organizations surveyed in this study we have adopted the Conceptual framework for information disorder of Wardle and Derakhshan (2017). This framework (henceforth denoted as WDF) represents a qualitative sublimation of the types, phases and elements of information disorder (as shown in Figure 1).

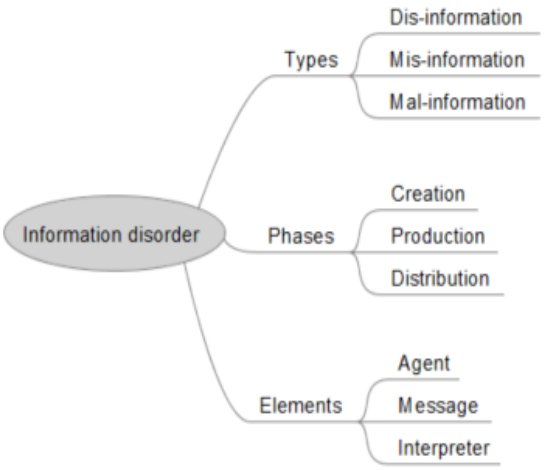


Figure 1. The WDF conceptual framework for information disorder

The three types of information disorder types were already defined and explained in the introductory sections. The phases essentially follow the logical lifecycle of information: **creation** refers to the steps towards 'creating the message'; **production** encompasses the transformation of the message into a media product, denoting its initial presence in the media; and **distribution** refers to the spreading of the message across various media and its proliferation in the public. The elements of information disorder are divided into: **messages** - being the information of interest, e.g. the (potentially) fake news; **agents** - referring to the controllers of the messages; and **interpreters**, signifying the 'audience' or 'the consumers' of the messages. Certainly, their roles and functions are further divided and analyzed into sub-processes.

These provide the guidelines for developing further our methodology - from designing the survey, through structuring and elaboration on the scheme of performance indicators, to the necessary adjustment to the narrower context addressed by this study - fact-checking. This "narrower context", for example, implies that, while the WDF framework requires addressing the 'Creation' phase of a message, the fact-checking process is clearly not tackling this issue and this phase would thus be irrelevant for our analysis. Therefore, a relevant mapping between the context of fact-checking organizations and WDF needs to be performed. This is demonstrated in the following section.

4.3. Mapping the WDF to the context of fact-checking

In order to be able to perform the required mapping, it is first necessary to establish the connection between the conceptual framework and the structural organization of the components of a fact-checking system. However, there is no known

taxonomy of fact-checking systems that defines such components. Moreover, there is even not an approach that establishes the process of fact-checking as one that could be functionally organized into a systematic operational whole. This is probably due to the fact that the fact-checking process is mainly seen as a human-effort relying on human expertise, which makes it difficult to unify the operations across the organizations. However, relying solely on human effort is increasingly becoming an unrealistic assumption, and the latest development in the field call for the need to establish a common taxonomy of fact-checking systems.

In this section, we will only provide the basis for defining such taxonomy. The further development of this taxonomy is out of the scope of this paper and will be subject to our future work.

4.3.1 Taxonomy of fact-checking systems

The first step towards the definition of a fact-checker's taxonomy is the identification of existing systems that bare resemblance in their objectives to the process of fact-checking and debunking. Such are the computational trust systems, which are already highly automated and supported by a well-defined taxonomy (Marti and Garciamolina 2006).

Based on the known approaches that try to systematize the fact-checking processes (Conroy et al. 2015; Guha 2017; Hassan et al. 2017), and complemented with the taxonomy of trust systems, we are able to determine the following three main components that a fact-checking system would integrate: *Information gathering, Decision-making* and *Response.* These can further be divided into subsystems that can again be equipped with both human and computational mechanisms, as shown in Table 1.

Table 1. Basic taxonomy of fact-checking systems

Fact-checking system		
Information gathering	**Decision-making**	**Response**
Information sources Information classification Information aggregation Novice policy	Good vs. bad messages Good vs. bad agents Successful vs. unsuccessful interpreters	Targets choice Incentives Punishments

For the purpose of our mapping, it is sufficient to only consider the three major parts of the fact-checking system. With such defined taxonomy, we are able to perform the mapping of the WD Framework to a fact-checking context. This is shown in Table 2. By merging these two approaches, not only our analysis can benefit from getting a conceptual grounding, but the WDF can also be revised through the lens of more practical approaches. For instance, if we provide a feedback loop from the taxonomy to the phases of information disorder, it can be noted that the framework does not account for the full lifecycle of information: Storage and Destruction are missing in this regard to ensure that the complete set of the fact-checking activities that could be related to the elements of information disorder were taken into account.

Table 2. Mapping WDF relevance to fact-checking

Mapping WDF relevance to fact-checking			**Fact-checking system**		
			Information gathering	**Decision-making**	**Response**
WDF	Information disorder type	Disinformation	•	•	•
		Misinformation	•	•	•
		Malinformation	•	•	•
	Information disorder Phase	Creation			
		Production	•		
		Distribution	•	•	•
	Information disorder element	Agents	•	•	•
		Messages	•	•	•
		Interpreters	•	•	•

This, on the one hand could mean that WDF only accounted for the possibility of relying on human-effort in the fact-checking process. On the other hand, it does reveal an important space for improvement. Additional improvements can also be made at the lower organizational level of the framework. This is will be addresses in our future work.

The convenience of WDF lies primarily in the fact that it joins the general issues of several different contexts to construct common guidelines and recommendations for a variety of stakeholders. Moreover, putting this framework in practice enables us to design a constructive feedback from practice to theory and show how the two can benefit from each other. This kind of approach pushes the whole field a step further from having only a conceptual framework and a step closer to designing a common Reference Model for Information Disorder.

5. Empirical study

Clearly, the scientific validity of much of the above described methods and approaches depends on the cooperation of the target organizations (and the maturity of their projects). As a primary database of fact-checking organizations dealing we used the list compiled by Graves and Cherubini (2016). This list, however, turned to be incomplete (for example, it listed only one fact-checking organization for the Czech Republic, whereas we were able to identify three more: manipulatori.cz, hoax.cz and evropskehodnoty.cz, and one international project run in cooperation with the Czech Centre for Investigative Journalism (Holcová et al. 2017). Based on our extended search, 50 European organizations were

approached, located in 27 countries. The majority of the organizations were contacted through their official website or through their publicly available emails. In 12 cases, however, online form was the only available form of communication. In addition, Facebook was used to establish contact with 7 of them, appearing to be the only possible way. The period of contacting all of the organizations was throughout December 2017 and January 2018. Despite the online communication, we also asked local contacts for help in several cases, such as in Finland, Italy, Latvia, Norway, Poland and UK. The feedback rate (number of feedbacks vs. the overall number of surveys distributed), although relatively low, allowed us to carry out highly relevant and statistically meaningful analysis. The processed results and the analysis are shown next.

5.1. Results and Analysis

The results, although derived from a modest statistical set, provide important insights. Few of them were expected, but most of them can certainly be claimed novel. So far we have collected data from 15 countries, 11 of which were obtained through the online survey, and 4 through the offline survey (30% feedback rate). Other fact-checking organizations promised to provide their feedback as well. In addition to the surveys, 4 semi-structured interviews were also carried out. These helped us iterate through and polish the initial set of questions to a final coherent Survey[27].

The overall content of the Survey was divided into three Sections: two major sections corresponding to the two major sets of indicators: efficiency and effectiveness, and one additional section to help us capture some more subtle contextual traits and interpret more adequately the responses provided in the first two sections.

5.1.1. Efficiency of fact-checking organizations

To investigate the efficiency of fact-checking organizations, we questioned various aspects of performance-related issues. In that regard, we inspected the volume and fluctuation of the organizations' stuff, metrics related to the number of detected hoaxes/debunked fake-news, user reach, type of content analyzed, and tools employed for the analysis.
The number of people engaged in the fact-checking process varies greatly among organizations (from 3 to 30). However, there is no decreasing of stuff noted over the years and most (~64%) of the organizations have their stuff increasing. This speaks of the actualization of the problem and their effort of keeping track on the arising issues. If we consider the distribution of users reached over the duration of a given project, it can be noticed that most of the projects have similar rate of expansion of their user base, with the oldest projects having significantly larger audience. This, on the one side dictates the requirement of having proper dissemination practices adjusted to the type of user base, but on the other side reveals an opportunity for exploiting the user feedback to quickly detect, repair, and improve large set of potential performance issues. However, both of these appear to be exploited to an insufficient extent.

The number of debunked news/hoaxes (last three-months average) varies highly across countries and is very much context dependent. However, we required for this information to see if it can reveal some context-related peculiarities, such as huge variations in the number of hoaxes between regions. It turns out, as noted later, that the number of detected fake news and hoaxes is very much dependent on the political situation and concrete political events in a given country (elections, campaigns, etc.). Clearly, this number also depends on the type of content analyzed by the fact-checking organization and the share of such content among the information sources. In that context, Figure 2 shows a relatively satisfactory distribution of the type of content analyzed by the fact-checkers. However, it is important to note that there is still a significant division between the organizations with respect to textual and audio-visual content. In other words, most of them are 'specialized' in one type of content only. Visual content, although known to have far greater impact in the proliferation of fake news than text (Wardle and Derakhshan 2017), is addressed to the least extent. Hence, increasing and adjusting efforts in this regard may result in a significant improvement of the rate of detecting fake-news, and thus, of the effectiveness of fact-checking organizations.

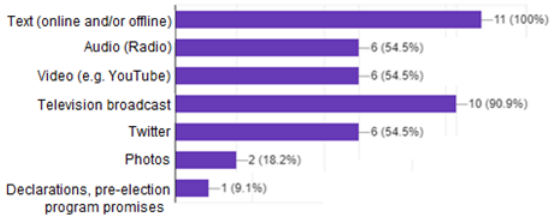


Figure 2. Type of content analyzed by the organizations

All of the metrics discussed so far can directly be related to the methodology employed by the organizations in performing their work, such as the share between the potential automated services/tools employed for combating fake news and the human effort invested in the process. In this regards, only three organizations reported the use of both human and computational effort. It is not clear, however, which aspect of the fact-checking process do human experts cover, and which is reserved for the computational techniques. Nevertheless, it is clear that the extent to which automated services are employed in these projects is very low. This, on the one side, prevents the organizations to exploit the full specter of fact-checking possibilities in a more efficient manner, and on the other side blocks the potential contribution to the development

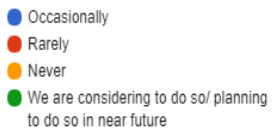
[27] https://goo.gl/forms/XV1DDjudPGZIFYLv2

of novel technical means for combating fake news that could emerge from the processing of large text corpora through crowdsourced users' interactions. Hence, there is a large space for improvements and introducing novelties in this context. Similar suggestions have only recently been put forward (Ciampaglia G.L. 2018). There is a proposal for a complete (end-to-end) technical fact-checking solution based on machine learning and natural language processing named ClaimBuster (Hasan et al. 2017). Components of ClaimBuster have already been practically implemented into real-world technical systems. Thus, it is clear that certain improvements are starting to be developed in the direction of computational facilitation of fact-checking. It is important to note, however, that these are all operational measures, as is the fact-checking itself. Proactive steps need to be taken as the best measure against information disorder. This is also revealed through the results of the survey in the final section, where the fact-checking organizations themselves call for a greater awareness and better resource allocation in the fight against information disorder.

5.1.2. Effectiveness of fact-checking organizations

While efficiency can help analyze the functionality and operation of the employed means for fact-checking, it is less of an indication for the overall impact of the project. To inspect impact-related issues, additional analysis is required that are related to the effectiveness of the fact-checking efforts. In that context, we analyzed the long-term considerations of the organizations' operation represented by their objectives for internal and external impacts and the evaluation of those impacts.

As part of these considerations for long-term planning, we asked for a particular business and/or sustainability plan of fact-checkers. Little considerations of this kind were reported with only 2 organizations having a concrete business model, and 3 with a sustainability plan developed. Mapping this information on the current longevity of each of the projects, it is to some extent understandable why the "newcomers" have not had such operational considerations. However, most of the organizations/projects have been running long enough to have such plans already elaborated in their sustainability portfolio. This would also imply that mechanisms for transparency and accountability should be in place, which is directly related to increasing the credibility and trustworthiness of the organizations. Placing properly these interdependent considerations for sustainable operation will inevitably contribute for fact-checking organizations to strive towards a more effective outcome of their work and to have a more crystallized set of operational objectives.



Related to the issues of sustainability is the type of impact envisaged by the projects' objectives. Figure 3 demonstrates that almost all of the projects envisage political and human impact, and most of them are aware of the societal impact the work may have in general.

Figure 3. Envisaged impact by the project

Despite their potential of having even wider and greater impact, none of them considers environmental and technical impact in their objectives, and only a few actually assess this impact in some way. Most of the organizations do not assess any impact, regardless of envisaging it as part of their objectives. Only one reported concrete measures taken in this regard: "*Prepared a video instruction how to use the site search tool; Monthly trainings that help increase citizen awareness*[28]". Clearly, monitoring and evaluation of impact as part of tracking their progress and impact is a measure of paramount importance to should be taken for increasing the effectiveness and efficiency of fact-checking projects. A lot has been done in this regard in the field of Public health and health-related projects. For e.g., the Payback model (Buxton and Hanney 1996) is the most well-known and used for project impact evaluation in disciplines other than health. It may be worth exploring this possibility in the context of fact-checking projects as well.

As part of the internal considerations, it is not only important to have the proper tools in place, but also to revise them and allow them to evolve together with the changing environment. In that sense, frequency of revision of the employed tools was explored, and the results are shown in Figure 4.

28 https://www.facebook.com/slovoidilo.ua/videos/1604236676294784/

Figure 4. Frequency of revision of the employed tools

Most of the organizations do pay attention to revision of tools, but there is still a significant number of them that have not yet considered this. Taking into account that this is a crucial requirement for effective fact-checking, raising awareness of these performance-related issues appears as a necessity on a European level.

The majority of the organizations select their target sources and media by some predefined criteria, the most common of which is 'public interest about the information'. Furthermore, they employ some mechanisms for information source evaluation (credibility, independence, trustworthiness, etc.), mainly to evaluate the independence of their information sources (e.g. news articles, politicians' speeches, tweets, etc.), although there are still a few that do not perform such checks. However, even those that do pay attention to the independence of sources rely on human-expertise and subjective evaluations only. This is another point where technology can provide great support and play a crucial role in improving the effectiveness and efficiency of fact-checkers. More importantly, such approach would increase both the transparency and the accountability of the organizations and, ultimately, their perceived trustworthiness. For instance, one formal apparatus that offers the possibility to assess source dependence and to reason with subjective beliefs at the same time can be found in Subjective Logic (Jøsang 2016).

Many of the organizations also provided evidence of agenda-setting impact (e.g. legacy media referencing the results of their work) as part of their effectiveness assessment. This mere fact speaks of the importance of fact-checking efforts existing to complement the current strategies for addressing information disorder. Almost all of the organizations reported that they have noted high dependency between the number of fake news and specific public events (elections, campaigns, etc.), which makes them direct testifiers of the interplay between the offline and the online world in a particular information context. Considering the above, together with the scale and the speed at which fake-news issues arise, a case can be made that efficient and effective efforts for combating information disorder can soon become part of some general set of cybersecurity measures. This gives even higher weight and value to the work (theoretical and practical) performed in this study.

As part of the external considerations, we explored the interaction of fact-checking organizations with stakeholders. This includes the nature of interactions, the means of dissemination of work and results and the direct collaboration with stakeholders. Interestingly, social media are very little exploited to relate with stakeholders in an interactive manner. Only one of the organizations reported using social media for this purpose (Figure 5). Although social platforms are used to promote and disseminate the work of the fact-checking organizations, an interactive mode of promotion could be an obvious point where improvements can be sought and achieved.

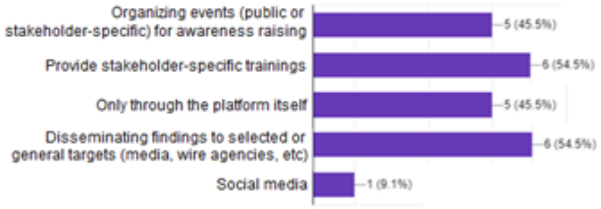


Figure 5. Nature of interaction with stakeholders

This especially stands true considering that almost all of the organizations reported on employed efforts to gather user feedback about one or more aspects of their work. Despite their seemingly identical work, there are organizational and operational traits by which these fact-checking organizations may largely differ. For instance, some of them only deal with debunking political statements. Others only check the veracity of tweets, and some only deal with visual content. Nevertheless, there is a strong collaboration among most of the European fact-checking organizations reported by the respondents of the survey (Figure 6).

Moreover, there is a deep involvement into the regulatory issues related to the combating of information disorder online on both national and European level. Most of the organizations (~55%) reported that they *"do not find the requirements for quality of online content aligned with the national/regional media policies (e.g. code of ethics of journalism)"*.

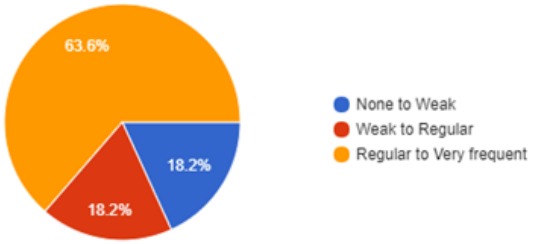


Figure 6. Collaboration with other similar (regional, EU, and wider) initiatives

Although no experiences with case law were claimed (in the sense that none of the organizations have been called to court about some fake-news related issues), 2 organizations reported direct involvement in the removal of harmful content by the IT companies or media outlets. Moreover, 3 responded that they have at some point employed 'strategic silence' (meaning: deliberately not revealing publicly a debunked fake-news article) to prevent the further proliferation of a fake news. This, in and of itself, is a strong argument for considering the possibility of a self- or co-regulatory effort that can be made by these organizations to increase even further their cooperation, their societal role, and, ultimately, to

contribute for a more effective and efficient regulation and Internet governance per se.

Finally, to get a view on the organizations own difficulties in realizing their performance objectives, we asked which are the biggest challenges and issues encumbering the pursuit of their goals. In that regard, lack of resources and insufficient stakeholders' awareness on the issues related to information disorder were reported as the major problems affecting the fact-checkers' workflow (Figure 7). This points to the need for bridging the gap between the organization's objectives and the public understanding of its own role in the fulfillment of those objectives. To achieve that, it may be necessary to also engage external efforts in this process of raising awareness in order to give more credibility to the fact-checking movement and raise the publicity of the issues related to it.

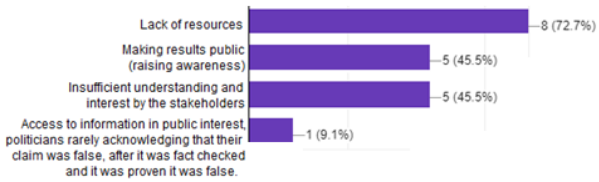


Figure 7. Most challenging issues in fighting hoaxes and fake-news

In this regard, it is important to note that in at least 11 of the EU countries (that were also part in our sample) there is more than one fact-checking organization, and in 6 of them there are even more than two such organizations. To cope with the drawback of insufficient awareness and understanding of the issues related to fact-checking, some of the organizations run their websites in multiple languages (e.g. stopfake.org integrates its contents in 12 languages, and EUversusDisinfo in 3 languages).

5.2. Discussion

In this section, we summarize the key findings and distill the main recommendations that result from this study. They are divided into parts following the same logical flow by which they were previously introduced.

5.2.1. Key findings

Efficiency: The number of people (the stuff) varies across organizations, but is either constant or increasing. This speaks of the ability of fact-checking organizations to act as stand-alone companies capable of preserving their human capital. However, only 2 organizations have a business and long-term sustainability plan in place.

There is an obvious lack of cooperation among the experts concerned by the problematics and that have different backgrounds and expertise. Such are the social scientists, lawyers, politicians, mathematicians, IT specialists, electrical engineers, and civil activists, to name a few. That being said, it can be discerned that although a clear general goal is set for all of the fact-checking organizations, there is a lack of clarity in the sub-goals and objectives that concern the internal processes of the organizations' operation.

In that sense, there is a lack of automated means that can be employed in the process of fact-checking, but also a lack of information about the advances in the various scientific areas, which causes activists to apply rather traditional, less functional and/or too costly methods for tackling information disorder issues in their activities. The great majority of the organizations rely solely on human expertise to perform all tasks related to fact-checking. This is not only related to the efficiency of performing the tasks, but also to the effectiveness of the entire effort.
Related to this issue is the one of specialization in the analyzed content: although various types of content are addressed by the fact-checking organizations, each organization specializes in a concrete type, mainly text, leaving potentially significant and impactful information untreated.

Effectiveness: The obvious absence of long-term sustainability plans also concerns the effectiveness of the fact-checking organizations. Thus, it comes as no surprise that most of the organizations do not have means for tracking the organizations' progress in relation to the pursued goals. Moreover, no means for tracking and evaluating any impact are in place and the self-assessment procedures are largely missing.

The dissemination practices employed by most of the fact-checkers are non-interactive and one-sided, thus lacking the mechanisms of ensuring the effective fulfillment of their goals.
There is also a lack of mechanisms for information source evaluation (credibility, independence, trustworthiness, etc.) and a great reliance on human-expertise, in addition to the subjective evaluation process. Not only there is an absence of automated means for facilitation of the fact-checking processes, but the tools that are employed in some aspect of the work are only occasionally being revised.

Lack of resources and insufficient stakeholders' awareness of the issues related to information disorder are the major problems affecting the fact-checkers' workflows. This points to the need for bridging the gap between the organization's objectives and the public understanding of its own role in the fulfillment of those objectives.

Methodological remarks:
We initially faced the fundamental problem of unwillingness to cooperate and to provide requested data. In a way, this also motivated us to evolve our methodology and search for more efficient and effective means for getting the desired feedback, practicing a similar set of recommendations as those that

came out of our work. Some of the organizations were also contacted multiple times, including through their national contacts. A common argument provided by some of the privately funded organizations was that their private funding allows them not to be open to external assessment. Others expressed worries about "commercial secrecy" or sources of funding (vis a vis competitor in the field). Very often the unwillingness to cooperate was due to the high interest among researchers and journalists in the activities of the fact-checkers, causing a flood of questionnaires, emails and calls. Although some information is freely and publicly available at the websites of the fact-checking organizations, this information is in most of the cases identical for all of the organizations.

One (relative) drawback of the methodology employed in this work is the one that usually comes with a survey-kind of field research: the data obtained and the responses are largely based on self-assessment by the respondents. However, in our survey we were aiming for as much comparable feedback as possible to lessen the drawback of the self-assessment. The questions that were more of a descriptive nature were posed with the aim to extract deeper contextual insights about the organizations.

5.2.2. Recommendations

Efficiency: Having proper sustainability and business plans in place, fact-checking organizations can act as stand-alone companies cherishing their own human capital. Through firm establishment within the network of related initiatives, they may even become part of a well-defined self/co-regulatory effort capable of affecting directly the regulatory landscape, the shaping of national policies and the implementation of national security strategies. However, this can only be achieved by bringing together in a transparent and eloquent manner the stakeholders from a diverse set of backgrounds and with various expertise. This will also lessen the gap between the fact-checkers' objectives and the public understanding of those objectives, alleviating one of the major problems these organizations are currently facing.

The successful 'marriage' between technology and human efforts must be considered by the organizations and adjusted to their context of operation within the particular environment. Although regular use of software-based fact-checking practices may not work properly in some specific linguistic contexts, implemented and employed properly such methods would dramatically increase the fact-checking capacity and the possible impacts in many regards (for e.g., allow for real-time detection and warning impact, address various types of content, choose relevant information sources, engage wider audiences and with that increase the awareness among stakeholders, etc.). The presence of such solutions is also an incentive for the public involvement in and of itself, affecting positively the effectiveness of the overall fact-checking process.

Effectiveness:
In additional to considering the employment of automated tools and services as part of the fact-checking process, revision of the employed tools at all levels is a crucial requirement for effective fact-checking, raising awareness of these performance-related issues appears as a necessity on a European level. Such requirements should become part of the internal self-assessment procedures of the organizations as well.

To address the lack of self-assessment procedures, among which tracking impact and tracking progress are the major ones, implementing systems for monitoring and evaluation of impact is a measure of paramount importance for increasing both the effectiveness and efficiency of fact-checkers. A lot has been done in this regard in the field of Public health and health-related projects. For e.g., the Payback model (Buxton and Hanney, 1996) is the most well-known and used for project impact evaluation in disciplines other than health. It is worth exploring this possibility in the context of fact-checking projects as well.

While it is clear that the fact-checkers' trustworthiness is critical and fact-checking organizations must strive for transparency in their working process, foundations, internal organization, and funding sources, it may be less obvious that this issue is closely linked to the issue of guarantees needed to prevent fact-checking organizations from playing like censors online. Thus, there is a need for a stronger and independent civil society control and of broader stakeholders' involvement.

Once established as credible bodies within the regulatory network of actors, mechanisms for accountability of the fact-checkers should be put in place and their effectiveness must be ensured. This will allow to tackle appropriately the issue of lack of trustworthiness, too.
Methodological improvements: What would be the next logical step of this methodology is a formalization effort that could lead to quantification of the results and a concrete assessment of the efficiency and effectiveness of the fact-checking organizations. The dimensionality of addressed issues is satisfactory and promises valuable results if such an effort is to be pursued.

We firmly believe that the comparative analysis presented here is not only meaningful in a statistical sense, but are also extremely useful for providing the guiding insights into a topic that is relatively new and highly relevant in many aspects: political, economic, technological, scientific, and societal. This especially stands as an important remark considering the fact that there are no similar research data available, let alone empirical studies performed of this kind.

6. Conclusion and Future Work

This work is a contribution to the development of fact-checking systems and the combat against information disorder in general. Through the development of relevant indicators for performance evaluation of fact-checking organizations and the definition of a taxonomy for fact-checking systems, we engage in the efforts for functional improvement of the fact-checking process itself. The principles of work followed here also contribute to the general practices of NGO performance evaluation. We believe that this work can form the basis for defining a generic methodology for performance evaluation of fact-checking and debunking organizations.

In addition to obtaining theoretical insights into the workings of fact-checking organizations, the study presented the first empirical research of practically implemented fact-checking systems, supporting the recommendations for performance improvements with arguments coming directly from the "battlefield".

As next steps, it would undoubtedly be interesting and useful to get insights from a larger sample of organizations. Fact-checking initiatives from non-European countries will also be included to allow for additional comparative analysis. In addition, quantitative analysis need to be developed encompassing more precise criteria and indicators (especially those related to assessment of methodologies used), as well as a more granularly defined taxonomy. This will also allow for the methodology to be formalized and integrated into a software solution that will serve the same purpose to a broader stakeholder community.

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FAKE NEWS

Key Findings	Recommendations	Limitations of the Study	Source	Note
Google – through its products as Google News, initiatives like Digital News Initiative in Europe, and its fact-checking activities – is a partner rather than the rival of the (online) news media.	News media should engage in potentially beneficial cooperation with Google and shed the fear of competition for advertising revenues.	This is not an analysis or an academic study but rather an opinion piece by a practitioner published in a semi-academic journal.	Madhav Chinnappa (2017) We are all in this Together, *British Journalism Review* 28(3) 50-55, DOI: 10.1177/0956474817730769	This text is practically a PR piece putting into a favorable light a specific business model (of Google) vis-a-vis potential criticism from the news media.
The concept of "fake news" presents a fundamental challenge to journalism in general and education of future journalists in particular. It constantly tests the principles of the Fourth Estate journalism regarding the value and relationships of facts and opinion in journalistic reporting.	Journalism educators should put to the core of their pedagogical efforts an emphasis on fact verification methods in addition to the requirement of accurate and balanced reporting. Future journalism adepts need to learn (again) to appreciate objective value of facts.	This is not an empirical or conceptual academic study but a commentary on the perceived grave problem in the practice of (educating for) journalism.	Nick Richardson (2017) Fake News and Journalism Education, *Asia Pacific Media Educator* 27(1) 1-9 DOI: 10.1177/1326365X17702268	The text includes a number of very relevant observations from the practice of education of the future journalists.
British news outlets, namely BBC, are often present a desired ideal of public service by scholars and commentators from abroad, namely USA, who compare them to their own media 'contaminated' by relationship with the economic and political power. From the British perspective, however, BBC went very much in the same direction failing to live up to the normative expectations of the Furth Estate. In the UK context, BBC is an "ultimate insider" rather than an effective check on power. The relationship between the state and the media is in the British case characterized as the "media capture".	In responding the question as to whether BBC model of public media service is the remedy for the widely acknowledged crisis or media today, caution is necessary to consider BBC's "intimate relationship with elite power" as the limitation of its capability to check the power.	A discernible progressive-liberal point of view in addressing the issues of BBC's self-declared impartiality.	Des Freedman (2018) "Public Service" and the Journalism Crisis: Is the BBC the Answer?, Television & New Media, DOI:10.1177/1527476418760985	The article provides a detailed treatment of the normative dimensions of the public service media compared with the structure and performance of BBC.

Key Findings	Recommendations	Limitations of the Study	Source	Note
There have been many measures and criteria employed in assessing credibility and trust in / of the news media – print and online – as well as various types of indicators (eg. formative and reflective). Various approaches employed by authors of the set of researched articles have been summarized in this text.	None.	Empirical material selected from one scholarly journal only.	Tien-Tsung Lee (2018) Virtual Theme Collection: "Trust and Credibility in News Media", Journalism & Mass Communication Quarterly, Vol. 95(1) 23–27, DOI: 10.1177/1077699017749244	The analysis is based on the set of 52 articles of Journalism & Mass Communication Quarterly (JMCQ) published ver the span of 1986-2017 period.
While the use of automated ways of producing news is growing, this article concludes that largely the consumer's perception of credibility of news is not related to the fact whether it is produced automatically, by human, or in a combined way. The only exception seems to be sport news where automated content was perceived significantly more credible than human one.	None apparent.	The study is based on experiment involving 300 participants, new readers in Europe recruited through the social media platforms Facebook, Twitter, and LinkedIn.	Anja Wölker, Thomas E Powell (2018) Algorithms in the newsroom? News readers' perceived credibility and selection of automated journalism, Journalism, DOI: 10.1177/1464884918757072	This topic has been under-researched.
In times of information overflow and growing disinformation it is useful to teach students to apply information quality and reliability test such as CRAAP.	Schools system should be involved in teaching students skills enabling them to become capable of critically assessing the information they abundantly harvest from various sources.	This is not an academic study but an article published in the practitioners' journal.	Maribeth D. Smith (2017) Arming students against bad information, Kappan, November 2017	This text may be primarily useful for practitioners.
As the Facebook is the prominent source of traffic on the US media webs, credibility of FB source becomes an important part of the decision of the consumer to engage with the news item suggested by the FB post. Consumers use clues like likes and comments to assess such credibility. Assumed bandwagon effect – preference for posts with more likes – has been confirmed but with certain qualifications.	Results can be used by scholars studying credibility and by news brands and journalists to increase credibility and engage audiences on Facebook.	Based on an online experiment involving US news consumers and Facebook users. The experiment itself included involvement on only a limited number of bandwagon messages – far from reality of the digital media scene.	Kate Keib, Bartosz Wojdynski (2018) Staying Alive: TV News Facebook Posts, Perceived Credibility, and Engagement Intent, Electronic News, DOI: 10.1177/1931243118767733	Study treats the heuristics of decision making of the media consumers as well as reviews the clues they have at their disposal.

Key Findings	Recommendations	Limitations of the Study	Source	Note
Sharing tabloid news on social media is a significant predictor of democratically dysfunctional misinformation and disinformation behaviors in the UK. Also, the more users engage with politically likeminded others online, the less likely it is that they will be challenged for dysfunctional behavior.	For research: Debates about fake news ought to pay attention to how hybrids of older and newer media—in this case social media combined with digitally adaptive tabloid media—can explain democratically dysfunctional online behavior. For practice: Thus, the role of elite and nonelite media, the specific features of national media systems, and the motivations and behaviors of ordinary social media users should all feature in future debates about the democratic quality of news.	Only UK data used; pertaining to the period of the 2017 general elections.	Andrew Chadwick, Cristian Vaccari and Ben O'Loughlin (2018) Do tabloids poison the well of social media? Explaining democratically dysfunctional news sharing, New Media & Society, DOI: 10.1177/1461444818769689	Four data sets collected during the 2017 UK election campaign have been integrated for this study: individual-level data on news sharing (N = 1,525,748 tweets), website data (N = 17,989 web domains), news article data (N = 641 articles), and data from a custom survey of Twitter users (N = 1313respondents).
Study concerns the use of the "American Dream" discursive tool and ideology of citizenship in the media portrayal of Syrian refugees in the US press. It concludes that both camps – the one describing Syrians as danger as well as the one equating them to other candidates for the American Dream – made use of this discursive tool. Thus the two narratives that draw on a common pool of rhetorical resources, but achieve two very contrasting conceptualizations of reality emerged.	None apparent.	None apparent.	Aditi Bhatia, Christopher J Jenks (2018) Fabricating the American Dream in US media portrayals of Syrian refugees: A discourse analytical study, Discourse & Communication, DOI: 10.1177/1750481318757763	This is a qualitative rather than quantitative study – an approach used is the critical discourse analysis.
None apparent.	Against the received wisdom, journalism should react to the current wave of misinformation by the well-researched journalism going into the details of the topic.	This is not an academic study but an editorial.	Rachael Jolley (2017), Fact-filled future? Journalists need to step up, and produce more detailed news coverage. The public needs it, Index on Censorship Vol. 46(1) 1-2	

Key Findings	Recommendations	Limitations of the Study	Source	Note
The study identified three dominant patterns in the construction of the artificial intelligence (AI) myth based on a content analysis of articles on AI published in two magazines focused at a broad readership, the Scientific American and the New Scientist.	None apparent.	The data used was limited to two non-academic journals.	Simone Natale, Andrea Ballatore (2017) Imagining the thinking machine: Technological myths and the rise of artificial intelligence, Convergence: The International Journal of Research into New Media Technologies, DOI: 10.1177/1354856517715164	This is not a theoretical study but a contribution to the history of "the rise and persistence of the AI myth".
Fake satirical accounts on social media impersonating political actors are typical Italian phenomenon. This study concludes that most of their authors have a rich history of political and social activism. They consider satire as a form of activism and even those who do not, still recognize the subversive nature of satire.	None.	Dealing with only one country, Italy.	Elisabetta Ferrari (2017) Fake accounts, real activism: Political faking and usergenerated satire as activist intervention, New media & Society, DOI: 10.1177/1461444817731918	Based on interviews with (anonymous) authors behind satirical fake social media accounts.
Reviewed books make some contact with the academic research, but their arguments primarily connect with the current, largely non-academic wave of anxiety and interest. Further connection could be achieved by putting "fake news" and "post-truth" into a longer and v broader perspective – before and beyond Trump.	"Three of the books examined here are written by journalist-researchers and usefully so, since journalism clearly finds itself at the centre both of what is happening and what might, for better or worse, happen next. Seeing how the problem is viewed from 'within' is therefore one important point of departure for any academic engagement."	This is a review article rather than study.	John Corner (2017) Fake news, post-truth and media–political change, Media, Culture & Society Vol. 39(7) 1100–1107, DOI: 10.1177/0163443717726743	This text reviews four recent books dealing with the topic of "fake news" and "post-truth".
Contemporary performance and communication practice of President Trump can be captured through the lens of situationism – a distinct sub-branch of "libertarian Marxism.	None.	This is not a media research study but rather a study dealing with a tiny section of neo-Marxism called situationism.	Paul Bleakley (2018) Situationism and the recuperation of an ideology in the era of Trump, fake news and post-truth politics, Capital & Class, DOI: 10.1177/0309816818759231	Quite obscure topic and a very narrow focus.

Key Findings	Recommendations	Limitations of the Study	Source	Note
Although fake news has been presented as harmful for African democratic debate and journalistic values, its emergence has also provided an opportunity for the mainstream journalistic community to re-assert their dominance and re-affirm the professional paradigm of news.	In South Africa phenomena related to the "fake news" proliferated at the rate comparable to that of USA. But the reaction to it – namely in the form of the "moral panic" needs to be understood within the particular social, cultural and political context.	None.	Herman Wasserman (2017) Fake news from Africa: Panics, politics and paradigms, Journalism, DOI: 10.1177/1464884917746861	A positive connotation of the term "fake news" is represented by shows like *The Daily News*, *The Colbert Report*, and publications like *The Onion*.
While the study confirms that content from fake news websites is increasing in volume, these sites do not exert excessive agenda-setting power. Fake news, however, has an intricately entwined relationship with online partisan media, both responding and setting its issue agenda.	None.	Focus solely on USA. "A notable limitation of this study is that it stops short of measuring the agenda-setting power of specific false claims that fake news generates, a direction future research should consider pursuing."	Chris J Vargo, Lei Guo and Michelle A Amazeen (2017) The agenda-setting power of fake news: A big data analysis of the online media landscape from 2014 to 2016, New Media & Society, DOI: 10.1177/1461444817712086	Includes interesting passages on agenda-setting power of fact-checkers.
As for the way how individuals authenticate the information they encounter on social media, they seem to rely on both their own judgment of the source and the message. When this does not adequately provide a definitive answer, they turn to external resources to authenticate news items.	None.	Based on the survey conducted in only one country, Singapore. Yet it is a conceptual study.	Edson C Tandoc Jr, Richard Ling, Oscar Westlund, Andrew Duffy, Debbie Goh and Lim Zheng Wei (2017) Audiences' acts of authentication in the age of fake news: A conceptual framework, New Media & Society, DOI: 10.1177/1461444817731756	The act of authentication is divided in two steps – internal and external one.
Along with the new ways of accessing information, teens under study also tend to prefer opinionated news over objective ones. Rather than rejecting ideals of objective journalism, this could be interpreted as teens' desire for more authentic renderings of news and information.	Anybody interested in connecting teens into public sphere should keep in mind their susceptibility to accept news in form which is both funny and does not shy away from expressing opinion.	The study is based on interviews with 61 high school students in the USA only.	Regina Marchi (2012) With Facebook, Blogs, and Fake News, Teens Reject Journalistic "Objectivity", Journal of Communication Inquiry 36(3) 246–262, DOI: 10.1177/0196859912458700	Teens' preferences regarding news match practices of the protagonists of the "positive fake news" shows like Jon Stewart or Stephen Colbert.

Key Findings	Recommendations	Limitations of the Study	Source	Note
None, but several opinions expressed on the structural changes in the IT industry, on GDPR and the use of AI in the industry itself.	Deployment of AI will be necessary in order to handle both the information overflow and disinformation.	This is not an academic study but rather an opinion piece by the senior IT professional and entrepreneur.	Manny Cohen (2017) Fake news and manipulated data, the new GDPR, and the future of information, Business Information Review Vol. 34(2) 81–85, DOI:10.1177/0266382117711328	Interesting opinions on the use of AI and on the data protection, algorithmic software and the need for decision to be based on the data.
"Fake news" is far from a novel concept but its current context – discussed also in this article – gave it a special relevance.	Conceptually, there are many reasons for refusing "fake news" as the fake concept – or at least to keep within quotes to signalize its conceptually unclear status. But there are also real concerns lurking behind the term and these need to be tackled.	A mixture of the conceptual study and the opinion piece.	Tarlach McGonagle (2017) ''Fake news'': False fears or real concerns? Netherlands Quarterly of Human Rights Vol. 35(4) 203–209, DOI: 10.1177/0924051917738685	Conceptual treatment of the "fake news" from the point of view of human right, namely the right to information and the fact that laws claiming to criminalize "fake news" may be used to curb the freedom of expression and other rights.
The article proposes an analytical framework of agonistic media pluralism that enables an evaluation of media discourse on whether it opens or closes the space for a democratic debate about and beyond established social structures and ways of life.	In order to better understand contemporary media scene, the concepts of agonistic democracy, post-politics and depoliticization should be used in analysis of media pluralism.	A narrow ideological and methodological focus.	Pieter Maeseele, Daniëlle Raeijmaekers (2017) Nothing on the news but the establishment blues? Toward a framework of depoliticization and agonistic media pluralism, Journalism, DOI:10.1177/1464884917739476	Written from the perspective of the critical discourse analysis (Essex school) and Chantal Mouffe's theories of radical and agonistic democracy.
Journalists and their sources are vulnerable without a strong constitutional recognition for freedom of expression.	An additional constitutional protection of the freedom of expression as well as the measures protecting whistleblowers are needed in Australia in order to make "shield laws" more effective.	Single country study (Australia)	Joseph M. Fernandez (2017) Pass the Source—Journalism's Confidentiality Bane in the Face of Legislative Onslaughts, Asia Pacific Media Educator 27(2) 202–218, DOI: 10.1177/1326365X17728822	This article (a) reports on the findings from an Australian study – Qualtrics surveys – into journalists' confidential sources.

Key Findings	Recommendations	Limitations of the Study	Source	Note
Understanding the wider consequences of cloaked Facebook pages might help identify the new literacy that people require to peek beneath the cloak and avoid sources of disinformation on social media, but the responsibility should not remain with users alone. Facebook needs to take social responsibility in order to aid citizens in the fight against faceless racism.	The cloaked Facebook pages' disguising techniques are part of a shift in which the debunking of news might reinforce, rather than threaten, power and. Counter-actions will need to go beyond merely shutting down the pages to resist these forms of propaganda in social media. Instead of leaving responsibility with its users, Facebook might algorithmically prevent these pages and consider revealing page administrators.	Single country study (Denmark).	Johan Farkas, Jannick (2018) Cloaked Facebook pages: Exploring fake Islamist propaganda in social media, New media & society Vol. 20(5) 1850–1867, DOI: 10.1177/1461444817707759	The cloaked Facebook profiles / pages are created by political / ideological opponents to spread political propaganda by imitating the identity of a political opponent in order to spark hateful and aggressive reactions.
News making is based on a blend of original reporting and reproduction of the source content, rather than on a choice of one of the two.	None.	None.	Keren Tenenboim-Weinblatt, Christian Baden (2018) Journalistic transformation: How source texts are turned into news stories, JournalismVol. 19(4) 481–499, DOI: 10.1177/1464884916667873	The journalistic transformation is defined as those interventions journalists make in their use of third-party textual material in the pursuit of crafting a news story. Five kinds of such transformations are decribed in the text.
As for the fact whether news media literacy predicts the likelihood of endorsing conspiracy theories, the study found that greater knowledge about the news media predicted a lower likelihood of conspiracy theory endorsement, even for conspiracy theories that aligned with their political ideology. In other words, individuals who give credence to conspiracy theories know comparatively little about how the news media work.	Greater news literacy can help undercut the influence of fake news, even when that "news" aligns with one's political ideology.	A web survey of 397 adults in the USA.	Stephanie Craft, Seth Ashley and Adam Maks (2017) News media literacy and conspiracy theory endorsement, Communication and the Public Vol. 2(4) 388–401, DOI: 10.1177/2057047317725539	Media literacy was measured with the three-component construct developed by Craft et al. (2013).

Key Findings	Recommendations	Limitations of the Study	Source	Note
While financial journalists tend to picture themselves as watchdogs, their actual role is different.	The observed problems could be rectified for by automated reporting	Based on 22 interviews with financial journalists in the USA.	Nadine Strauß (2018) Financial journalism in today's high-frequency news and information era, Journalism, DOI: 10.1177/1464884917753556	The impact of financial journalism on driving the stock prices is actually quite limited.
Ukrainian news consumers – in a situation of news "weaponized" for propaganda purposes – selected the sources of their news based on their perception of which topic was important, not just on the fact of belief in the accuracy of facts.	None.	Interviews done in only one region of the country (Odessa, Ukraine)	Joanna Szostek (2018) Nothing Is True? The Credibility of News and Conflicting Narratives during "Information War" in Ukraine, The International Journal of Press/Politics Vol. 23(1) 116–135, DOI: 10.1177/1940161217743258	This is a qualitative study. Material comes from 30 audio diaries and in-depth interviews.
The reviewed book – broadcast hysteria (about 1938 Orson Welles's radio broadcast of the "War of the Worlds") demonstrates how newspaper reporters failed to grasp the complexity of listeners' reactions, and thus contributed to the aggravation of public hysteria.		This is a book review, not a study.	A. Brad Schwartz, Broadcast Hysteria: Orson Welles's War of the Worlds and the Art of Fake News. New York: Hill & Wang, 2015. 337 pp.; Reviewed by: Stephanie A. Bluestein, Journalism & Mass Communication Educator 72(2), DOI: 10.1177/1077695817706812	

Key Findings	Recommendations	Limitations of the Study	Source	Note
None. The text largely deals with the responses to crisis of political participation.	Supporting democratic participation in the age of new technologies required a project- and network-based approach that goes beyond the traditional ways of doing things. (Details not specified.)	This is not an academic study but an article in the journal of the political foundation of the European People's Party (EPP). It includes a number of normative statements validity of which is taken for granted.	Florian Hartleb (2017) Political participation today: a radical shift, but with a positive or negative outcome? European View Vol. 16303–311 https://doi.org/10.1007/s12290-017-0458-2	
None.	In an era of fake news even science needs to be more vigilant and use peer review and impact factor to guarantee a required level of scrutiny.	This is an editorial in a mmedical science journal, not a study.	Prakash P Punjabi (2017) Science and the "fake news" conundrum, Perfusion Vol. 32(6) 429, DOI: 10.1177/0267659117727418	
None.	The fact that Russian social media 'trolls' were twisting and manipulating the public debate in Finland should be viewed as a national security threat and addressed accordingly.	Even though it is written by an experienced journalist, this is not an academic study but an article in the journal of the political foundation of the European People's Party (EPP).	Jessikka Aro (2016) The cyberspace war: propaganda and trolling as warfare tools, European View (2016) 15:121–132, DOI 10.1007/s12290-016-0395-5	The author has experienced cruel harassment for her pioneering exposition of the Russian trolls and the ways they operate.
Abstract The present experiment (N = 390) examined how people adjust their judgment after they learn that crucial information on which their initial evaluation was based is incorrect. In line with our expectations, the results showed that people generally do adjust their attitudes, but the degree to which they correct their assessment depends on their cognitive ability. In particular, individuals with lower levels of cognitive ability adjusted their attitudes to a lesser extent than individuals with higher levels of cognitive ability. Moreover, for those with lower levels of cognitive ability, even after the explicit disconfirmation of the false information, adjusted attitudes remained biased and significantly different from the attitudes of the control group who was never exposed to the incorrect information. In contrast, the adjusted attitudes of those with higher levels of cognitive ability were similar to those of the control group. Controlling for need for closure and right-wing authoritarianism did not influence the relationship between cognitive ability and attitude adjustment. The present results indicate that, even in optimal circumstances, the initial influence of incorrect information cannot simply be undone by pointing out that this information was incorrect, especially in people with relatively lower cognitive ability.			**'Fake news': Incorrect, but hard to correct. The role of cognitive ability on the impact of false information on social impressions** Jonas De Keersmaecker and Arne Roets	

ARTIFICIAL INTELLIGENCE

Key Findings	Recommendations	Limitations of the Study	Source	Note
Most of the arguments against guardianship (technocracy being its expression) and for democracy, as discussed in scholarly literature so far, focus on imperfections of human beings, and fail to address the possibility of truly superior knowledge, intelligence, and even moral virtue.	In the absence of observable data, sciencefiction could be a good starting point.	The article is inspired and based on a novel,that means on the imagination of the author.	Ivana Damnjanović, Polity Without Politics? Artificial Intelligence Versus Democracy: Lessons From Neal Asher's *Polity* Universe, Bulletin of Science, Technology & Society 2015, Vol. 35(3-4) 76– 83	It seems to be the case that political theory constantly lags behind technological developments.
In the professions in general, the biggest challenge AI may pose in the coming decades is not from replacing professional roles, but from nibbling away at the edges of such roles, and undermining both professional identity and professional bodies of knowledge that Shirky identifies.	The challenge for the information profession in the immediate future is to rethink the ways in which it exploits and complements emerging technological tools, particularly through emphasizing soft skills including empathy and motional intelligence, and their role in complementing professional practice.	It is described only common facts, generally known from the media.	Luke Tredinnick, Artificial intelligence and professional roles, Business Information Review 2017, Vol. 34(1) 37–41	The clear review of history about opinions and discussions, what AI means and will be.
With the boom in offering business analytics programs in major universities, our theory implies that we should be careful about oversupplying analytics skills, as such skills will soon become a comparative advantage of machines, and can be expected to be supplied by more advanced AI. The key to remaining important will become the interpretation and decision-making based on the analytic results not the data and analysis skills per se.	AI will be capable of performing even the intuitive and empathetic tasks, which enables innovative ways of human–machine integration for providing service but also results in a fundamental threat for human employment.	It would be a challenge to offer more specific predictions, not just to provide a road map.	Ming-Hui Huang and Roland T. Rust, Artificial Intelligence in Service, Journal of Service Research 2018, Vol. 21(2) 155-172	The described theory of AI job replacement provides a road map about how AI advances to take over tasks requiring different intelligences, how AI can be used to perform service tasks, and how workers can shift their skills to achieve a win–win between humans and machines.

Key Findings	Recommendations	Limitations of the Study	Source	Note
It is proved that AI-VT can propose 10 consecutive lessons aimed at the same objective, each one different from the others even if the process of choice is based on analogy with capitalised courses and experience. The agents of AI-VT collaborate in the most suitable exercises for each part of each lesson in order to provide. This study proves the consistency of the collegial solutions proposed through its evaluation by seven trainers.	The system could nevertheless be improved if it could take into consideration the exact meanings of the sub-objectives to be reached during each proposed lesson.	Tested only in the context of aikido training. It must be initialised every year at the beginning of the season or whenever no further duration time remains.	Julien Henriet, Artificial Intelligence-Virtual Trainer: An educative system based on artificial intelligence and designed to produce varied and consistent training lessons, Proc IMechE Part P: J Sports Engineering and Technology 2017, Vol. 231(2) 110–124	Future investigation will focus on the system's ability to perceive and interpret subbjective meanings in order to provide students with wisely devised instructions and exercises, even when the system replaces an exercise with the closest one during its adaptation phase
It is needed a concept of memory more complex than the common idea of an accumulation of memories. In particular, it i s needed to reevaluate the active role of forgetting as a necessary component. The problems raised by the legislation to implement the right to be forgotten on the web as an opportunity to test a different way of observing social memory and its technological support. Algorithms use data to produce information that cannot be attributed to any human being. In a way, algorithms remember memories that had never been thought by anyone.	It should be faced algorithms directly as autonomous agents, with processes, procedures, and problems that cannot be traced back to our familiar forms of attribution and accountability.	The emphasis is particularly placed on Google. The restrictions of the analysis are governed by valid legislation approved by political actors.	Elena Esposito, Algorithmic memory and the right to be forgotten on the web, Big Data & Society January–June 2017: 1–11	In web memory, remembering and forgetting are not two opposing components that negate each other. The availability of memories can increase together with the loss of memory forgetting.
The most valuable contribution of AI to factory automation will be its ability to force recognition of the need for an integrated systems approach. It is a virtual truism that factory automation depends on viewing the factory as a whole. The harnessing of intelligence in practical AI implementations should help develop integrated systems for design, manufacturing planning, process planning, production planning and control, production management, and product distribution	The choice of various formalisms for representing knowledge should likewise be studied, It is necessary to test the adequacy and effectiveness of such formalisms in expert systems	Potential contributions of human factors research to AI are only briefly described.	Donald J. Hillman, Artificial Intelligence, Human Factors, 1985,27(1),21-31	The article was published 34 years ago, is very outdated.

Key Findings	Recommendations	Limitations of the Study	Source	Note
The author does not anything wrong with investigating the procedures used by judges by attempting to specify them as algorithms. He believes it is theoretically possible to do this but that it will be a long time before it is accomplished.	At the end of the road are algorithms for designing never-before-imagined masterpieces and algorithms for producing original, cogent critiques of existing objects.	It is only a brief survey to show some of the progress and motivational underpinnings of artificial intelligence.	J Gips, Artificial intelligence, Environment and Planning B, 1979, volume 6, pages 353-364	The article was published 39 years ago, is very outdated.
Techniques suitable for modeling natural processes may not always be fully suitable for modeling processes involving beings quite capable of manipulating them intentionally. The effects of the various notions, traditions, and meanings of human actors have long served to buttress the skepticism of many political scholars of the model construction and analysis activities of colleagues who pattern their research activities more after natural scientists rather than the humanists.	AI technology offers the prospect of more compelling descriptive foundations for political analysis.	The works reviewed in this article constitute the early steps of a nascent program of study. Much remains to be accomplished.	Gavan Duffy and Seth A. Tucker, Political Science: Artificial Intelligence Applications, Social Science Computer Review 13-1, Spring 1995. Copyright & copy; 1995 by Duke Umversity Press. ccc o894-4393 / 95 / $ '50.	The article was published 23 years ago, is outdated.
It is difficult to comprehend the present cultural significance of computing technologies without considering the impact of AI, which dominated a crucial period of their development between the 1950s and the 1970s. The myth of AI did not cease to exercise a strong impact after this period, as the narrative of 'AI winters' implied. In fact, this myth continues to characterize several aspects of the contemporary imaginary connected to new media Technologies. The imaginary of networked communication and the Web is largely based, just like the AI myth emerged in the post-war period, on the recurrence of three distinctive patterns: The use of ideas and concepts from other fields and contexts to describe the functioning of AI technologies, the mingling between examination of present research results with the imagination of potential future applications and horizons of research, and the strong relevance of controversies in public discussions of the concept and its application.	This examination of the AI myth is also meant as an encouragement to give more emphasis to the way this cultural vision reverberates in contemporary discourses on digital technology and culture.	The analysis of technological myths in the development of AI technologies from 1950s to the early 1970s is only based on a content analysis of articles on AI published in two magazines, the Scientific American and the New Scientist	Simone Natale and Andrea Ballatore, Imagining the thinking machine: Technological myths and the rise of artificial intelligence, Convergence: The International Journal of Research into New Media Technologies 1–16, 2017	This article aims to contribute to the understanding of today´s digital culture, „new media', by illuminating the emergence of a crucial component of the digital imaginary

Key Findings	Recommendations	Limitations of the Study	Source	Note
It is fair to conclude that artificial intelligence promises to reduce rather than to augment technological unemployment. While the machine may never be more intelligent than man, men vary in theirs intellectual capabilities, and the machine may and undoubtedly will surpass some men. The threat, then, is more one of technological unemployment than of domination.	It is necessary to enable man to solve the whole problem of technological unemployment in the economy, including that part, if any, caused by its own introduction.	Knowledges and facts stated in this articles are very outdated to be judged.	Arthur L. Samuel, Artificial Intelligence: A Frontier of Automation,	The article was published many years ago, is very outdated. It is not stated where and when was the article published.
It would the final disaster: the imposition on ourselves of a totally "managed" and and „administered" society. There is no doubt tha this is gradually emerging among us. Because eveywhere the unsystematic, disorderly, everyday conversational, or dialogical background to our lives together is being eradicated and replaced by single, ordered, institutionalized forms of life, functioning only in terms of supposedly quantified exchanges of information".	AI and cognitive science must come to see just one of many voices among a whole cacophony of others that are all currently competing for our attention. As a technology, we can use it wisely to enhance our lives; i tis a philosophical claim of a fundational nature that it must be rejected.	The author presented a different approach, that could be elaborated on a larger area and in more details.	John Shotter, Artficial Intelligence and the Dialogical, American Behavioral Scientists, Vol. 40, No 6. May 1997, 813-827	The article was published 21 years ago, but it is inot outdated, on the contrary up to date.
Recent research we commissioned suggests consumers use web searches to check facts they read online, in social media or heard from friends and family. Search is used to correct misinformation, not spread it, and by design shows multiple viewpoints on a single page of results. The best role we can play in combating the problem of fake news is in supporting the development and identification of high-quality content online, restricting the flow of money to deliberately misleading content and ensuring our reporting and feedback tools are as effective as they can be.	Sustainable business models still need be developed, and we are committed to working with publishers to be part of the solution, because we recognise that the news organisations and Google are part of the same information ecosystem.	This article is journalistic. The project and their results are described. It's just Google. Criteria for verifying facts have not been outlined	Madhav Chinnappa, We are all in this together, Chinnappa; DOI: 10.1177/0956474817730769; [2017/9] 28:3; 50-55; http://bjr.sagepub.com	The aim of the described project is to provide a wider and deeper variety of news sources with multiple viewpoints. Publishers can choose whether or not they want their articles to appear in Google News and Search – the majority choose to be included because it creates real value.

Key Findings	Recommendations	Limitations of the Study	Source	Note
Ai and expert systems are so prevalent that i tis diffiult to see a future in which they are not used in counseling. The question is, whether they will be complement or parallel human coulnseling services.	Although these programs are informational at this time, they are a step toward preparing the ground for thinking mahcines.	An counseling computing program needs also to deal with nonratiomnal and irrational thoughts and feelings, that we do not understand and therefore it is impossible to specify their precisely (incomplete knowledge)..	Michael E. Illovsky, Counseling, Artificial Intelligence and Expert System, Simulation and Gaming, Vol. 25, No. 1,March 1994, 88-98	The article was published 24 years ago, is outdated.
Social media will increasingly become a tool for campaigning. Leaders and groups will use more sophisticated data analytics and tactics to better target potential supporters and messengers.Given concerns of users with Facebook and Twitter over privacy and data usage, groups are likely to increase their usage of encrypted social media and segmented networks. This may make their actions harder to track and monitor. The use of social media and conflict will also be increasingly tied to cyber conflict more generally. From the use of sock puppets to selective leaking of online materials, actors will increasingly coordinate social media with aggressive cyber actions. Artificial intelligence and more sophisticated algorithms are also likely to further influence the ability to detect and manipulate conflict and social media. The effect of this increasing dependence on automated detection and defense of conflict are likely to be less predictable and potentially nonlinear.	Scholars should focus on understanding how groups use social media to recruit and shape potential follower's ideology. Which types of platforms, appeals, or messaging tactics are most successful and persuasive? Which platforms and messages do elites and wolrd leaders use to mobilize the followers, and what tactics do they use to quash dissent? How do elites and leaders use social media to communicate with other leaders and elites?	In this undoubtedly very interesting article, there is a lack of a closer look at the role of social media at Brexit. What role did they play? Or did the traditional media not dominate? If so, why.	Thomas Zeitzoff, How Social Media Is Changing Conflict, Journal of Conflict Resolution 2017, Vol. 61(9) 1970-1991	Understanding the dynamic effects of social media is important. Social media platforms lower the barriers to ommunication. Does it reduce trust in the mainstream media in democracies but allow alternative information to flow in autocracies?

Key Findings	Recommendations	Limitations of the Study	Source	Note
A closer working relationship with journalists might even help ociology draw even with the other social sciences that already study current events and other topics that ournalists cover regularly, notably, economics, political science, and psychology. Journalists would benefit as well, since their coverage would be enhanced if they knew more about the work of economic and political sociologists.	Journalism and sociology should study each other's work, could look at ways of helping each other, ought to work together at times and should try to use each other. Sociologists and journalists should occasionally study together.	Specific cases and data could be mentioned in the essay. Not all the possibilities, aspects and activities of journalism have been taken into account.	Herbert J. Gans, Sociology and Journalism: A Comparative Analysis, American Sociological Association 2018	The topic sketched in this essay should definitely be further developed, because these disciplines may discover that mutual understanding and cooperative relationships might help them to better understand the society they both study.
The shaping influence of computer chess on AI, cognitive science, and a series of related decision sciences is, of course, of immediate concern to historians of those disciplines. The more general lesson to be drawn from this story is methodological, not historical, and is more widely applicable. The most lasting insight of the work on drosophila in the history of science has been to reveal the close relationship between theory and practice, between researcher and subject, between organism and technology	As the practice of science comes to rely more and more on the use of computers and computer-based technologies, the history of software will become as much a part of the history of modern science as instruments, laboratories, published papers, and social practices. It is essential, therefore, that we develop the tools and methodologies for studying software that incorporate an appropriate level of historical, sociological, and technological sophistication.	It could have been deeper described how a computer sees a chess game, how its „vision" has been developing with regard to the topic of the article.	Nathan Ensmenger, Is chess the drosophila of artificial intelligence? A social history of an algorithm, Social Studies of Science 42(1) 5–30, © The Author(s) 2011	What is important is the software, not the machine, and software itself is generally seen as being uniquely, and almost infinitely, protean. Unlike traditional technologies, which need to be demolished or disassembled before than can be rebuilt or replaced, software can be rewritten using only a eyboard.
This case study confirms that the uptake of technological innovation is neither inevitable nor relentless – something that we must wake up to or face very negative consequences. Neither is technological diffusion dictated by an unambiguous singular rational engineering efficiency linked with innovation.	Without a multidimensional research program, it becomes very hard to recognize complexity and uncertainty, and thus the scope and limits of various types of technological change.	More imigination and speculations – based on the relevant facts - about possibilities for the future would be required.	Ross Boyd and Robert J. Holton, Technology, innovation, employment and power: Does robotics and artificial intelligence really mean social transformation?, Journal of Sociology 1–15, © The Author(s) 2017	Future research in this area would do better to develop a broader research program than is possible by focusing on the single hypothesis of radical transformation.

Key Findings	Recommendations	Limitations of the Study	Source	Note
Many of scientists in STS are concerned about selective uses of scepticism to foster political action or inaction, but it is the height of hubris to suggest that our field gave rise to, or is otherwise responsible for, the rhetorical means through which controversies have been 'manufactured'. If STS is to be credited and/or blamed for the 'post-truth era', a more convincing case needs to be made.	1. Is STS unified by a single, coherent political epistemology or, like many fields of activity we study, is it marked by heterogeneity, loose and partial affiliations, and recurrent and unresolved debates? 2. Are there any causal chains that lead from STS to the approaches or tactics of climate skeptics, proponents of intelligent design, and others who are currently accused of manufacturing scientific controversies? 3. Does a professional field such as STS provide a strong source for the political views and reactions to current events that many members of the field apparently share? 4. Does (or should) our ability to recognize fake news, junk science, spam, phishing, and other instances of systematic bullshit substantially depend upon our Professional expertise as STS researchers?	It is a brief essay. The author took up the question, if only to sort out his own thinking in the face of a blizzard of hyperbolic and confusing claims.	Michael Lynch, STS, symmetry and post-truth, Social Studies of Science 2017, Vol. 47(4) 593–599	This essay takes up a series of questions about the connection between 'symmetry' in Science and Technology Studies (STS) and 'post-truth' in contemporary politics.
Algorithms are used to track and analyse vast sources of data and information to interpret and gain intelligence to report on. It must be stated however that even with all of this clever technology, although helpful, there still needs to be human interpretation and management.	Good information literacy, accompanying digital literacy skills and careful and considered management of information, has to be considered one of the most critical factors in organizations across the world today.	It is an editorial, no essay and no scientific article.	Claire Laybats and Luke Tredinnick, Using information and technology responsibly: Enhanced awareness and skills development for the future, Business Information Review 2017, Vol. 34(3) 120–121	It is only an editorial.

Key Findings	Recommendations	Limitations of the Study	Source	Note
Policymakers both at the EU and national levels should regularly review whether the risks of using AI fall within the current regulatory regime, and if the existing rules adequately address those risks. The new regulation on the free flow of non-personal data will address some of the challenges of AI by upholding fundamental human rights in thisfield. In the EU, it is necessary to increase efforts and the pace of retraining people and changing the education systems to meet the employment system's needs. By fostering skills such as creativity, curiosity, communication, team building and critical thinking, citizens will be in a better position to keep pace with a jobs market that is in a state of permanent change..	The EU must realign its AI-related initiatives and focus them on mission-based innovations—that is, large-scale projects to develop human-centred AI so that it augments our intelligence in a computer–human symbiosis to solve the societal problems of our time. The EU should target funding at universities and research laboratories that foster the development of talent in AI.	The author has not recognized the relationship and cooperation between the EU and member states in this area. Which member states should benefit from AI support? Should all states be supported equally?	Gonçalo Carriço, The EU and artificial intelligence: A human-centred perspective, European View 2018, Vol. 17(1) 29– 36	The article also gives an overview of the EU's current position on AI and provides policy recommendations.
The challenge of inaccurate information and misinformation on the Internet is therefore more significant than it appears at first glance. There is no clear-cut differentiation between reliable and unreliable sources; no blanket tests that we can apply; all sources of information on the web blend truths and mistruths to varying degrees and each has to be taken on its own merits; and all claims over the veracity of particular sources will themselves be contested. And this widespread assault on questions of truth and trustworthiness in digital culture makes evaluation both more vital and more problematic.	We should prefer current information to old information, authoritative sources to informal sources, impartial or disinterested information to partial or interested information, attributed information to unattributed information, superficially accurate information to superficially inaccurate information and so on. In many ways, these analytical categories can be reduced to the idea of provenance: securing the source and its trustworthiness against characteristics that we have traditionally associated with trustworthy sources.	It is an editorial, no essay and no scientific article.	Luke Tredinnick and Claire Laybats, Evaluating digital sources: Trust, truth and lies, Business Information Review 2017, Vol. 34(4) 172–175, The Author(s) 2017, sagepub.co.uk/journalsPermissions.nav, DOI: 10.1177/0266382117743370	It is only an editorial.

Key Findings	Recommendations	Limitations of the Study	Source	Note
The social aspect of social media decides matters of truth on the basis of popularity and tribal affinity rather than impersonal logic and evidence. The problem with zeroing in on fake news as the culprit for a post-truth world is that it does not explain what is driving the fake news. It would be naïve to think that fact-checking can somehow contain the problem of fake news. We have observed the practice of trolling migrate from anonymous comments on blogs to open comments by users with no wish to hide their identities, from citizens who troll politicians to politicians who troll them back and from lawmakers who troll each other through legislative trolling to national leaders who troll each other with the threat of a literal nuclear option.	If we wish to understand why truth has become a casualty in contemporary politics, we should carefully examine the dominant media of our age, namely, social media.	The author could focus more closely on causes (reasons) and an analysis of technologies of communications in the stated cases, which he described excellently.	Jason Hannan, Trolling ourselves to death? Social media and post-truth Politics, European Journal of Communication 2018, Vol. 33(2) 214–226	Trolling has gone mainstream, shaping politics and even legislation.
The research shows that politicians do learn a lot from the media when it comes to stories they do not take action on. Politicians have prior knowledge about only one-third of such stories. In other words, although politicians are not so dependent on the media for information about what they do in Parliament, they use the media to be informed more generally speaking. It is in that sense possible that the media—although not necessarily revealing the specific information that was needed for a specific political action—raised politicians' awareness for the problem in a broader and longer term sense.	The fact that our findings apply across countries makes us confident that they are generalizable toward many other western countries. The findings of our paper, as well as political agenda-setting theory more generally, probably work differently in countries outside the western world where, for instance, freedom of the press is not always guaranteed; yet elaborating on that is beyond the scope of this paper.	Politicians' response to the survey questions may be prone to social desirability bias, especially if politicians feel that they "should" act on the news or that they "should" know about the news before it breaks. Politicians also had not to take the time to thoughtfully complete all survey questions about the seven news stories.	Julie Sevenans, The Media's Informational Function in Political Agenda-Setting Processes, The International Journal of Press/Politics 2017, Vol. 22(2) 223–243,	The author hopes, that the current study makes a relevant step to correctly and confidently interpret the many studies that were conducted in the field of the understanding the mechanisms underlying political agenda setting.

Key Findings	Recommendations	Limitations of the Study	Source	Note
Platforms do not merely convey content identified through measures of popularity, but they also favour content that aligns with profit-making partnerships and aims, such as stories using Facebook Live. Platforms also influence the likes, comments and shares, contributing to metrics of popularity by boosting paid content in users' feeds. Therefore, platform news distribution is far from intervention-free in its appearance of automation, as developers, corporate players and commercial partners all shape how users and news organisations engage with these news functionalities.	Algorithmic selection of popular content can also be biased and present problems for accessing relevant news information. Users may not share news stories on particular platforms, and trivial content may receive more overall attention than pressing news.	This article relies very much on the research and opinions of other authors, and lacks an own original research and own findings from it resulting.	Stefanie Duguay, Social media's breaking news: the logic of automation in Facebook Trending Topics and Twitter Moments, Media International Australia 2018, Vol. 166(1) 20– 33	This article has expanded van Dijck and Poell's (2013) framework of social media logic through an analysis of platform news functionalities, demonstrating how elements of programmability, popularity, connectivity and datafication are sustained and naturalised through the logic of automation.
The data of this study confirm that the respondents' political ideology was a strong determinant of their belief in the two political rumors. Yet the significant positive relationship between using social media as a source for news and beliefs in political rumors even after accounting for the variance explained by as political ideology, suggests the centrality of individuals' information environment. Findings confirm that higher levels of political similarity in social networking sites predict a stronger relationship with relying on social media for news and believing in political rumors. Thus, this study reveal the significant connection between the users' reliance on social media as a source for news and their beliefs in political rumors.	The future research examining the growing complexities of sharing, commenting, and linking news and information in social platforms will contribute to further clarifying their role as disseminators of news.	There are a few limitations: First, the findings in this study are based on data from a cross-sectional online survey, which allows for exploring and clarifying structural relationships, yet provides weak support for causal inferences. The second limitation regards the measurement of some concepts in the study.	Soo Young Bae, The social mediation of political rumors: Examining the dynamics in social media and belief in political rumors, Journalism 1–17	This study adds valuable insight about the conditions under which political rumors can be regarded as more believable.

Key Findings	Recommendations	Limitations of the Study	Source	Note
The emerging feature of these new forms of disinformation is that it is not only the state-controlled media organization that produces propaganda but citizens themselves who actively participate in the creation of disinformation by using new platforms to push their individual opinions to a point of excess, contributing to a new order where disinformation acquires a certain authority. The comparisons between post-Soviet and western contexts, while somewhat speculative, are necessary. It is easy to critique the disinformation approaches discussed throughout this essay as examples of authoritarian attempts to control new media platforms, but it is not that difficult to point to parallel tactics employed by democratic regimes.	Disinformation seem to be less the result of message manipulation by elite media owners, and more of a byproduct of harvesting (via social media) and directly reporting (to the detriment of the job of the journalist) the opinions of 'the people'. In this way, states can rely on citizens' do-it-yourself disinformation campaigns to maintain the status quo. Worryingly, these media practices are not just a feature of autocratic regimes, but an emerging characteristic in democracies as well.	This article, in its description, lacks an objective and broader view of news and the reporting of this conflict in the single media in Ukraine itself, not only in the pro-Russian media.	Ulises A Mejias and Nikolai E Vokuev, Disinformation and the media: the case of Russia and Ukraine, Media, Culture & Society 2017, Vol. 39(7) 1027–1042	The ongoing conflict between Russia and Ukraine can be analyzed as an instance where the Internet has strengthened the power of political actors to create disinformation.
It nevertheless seems worrisome that no democratic nation appears immune from communication breakdowns in which sources from within and without spread disinformation that disrupts once more authoritative information flows from government officials through the mainstream press to publics. The research on the production of disinformation and its effects in democracies is currently surging, but the agenda and frameworks are not clear, and links to more conventional political communication research need to be forged. One obvious direction following from our argument involves identifying the characteristics of disinformation in different societies, noting where similar factors are in play and where important national differences exist.	An area for research is to put disinformation in broader political context, both domestic and foreign Studying the operations of hackers, trolls and bots should become a more central area of political communication research. The authors also suggest developing better perspectives on the nature of the problem.	In this interesting paper, there is a lack of a closer look at the role of tradional and social media at Brexit, what was not the classical campaign and was not the classical case of party populism.	W Lance Bennett and Steven Livingston, The disinformation order: Disruptive communication and the decline of democratic Institutions, European Journal of Communication 2018, Vol. 33(2) 122– 139	The spread of disinformation can be traced to growing legitimacy problems in many democracies.

Key Findings	Recommendations	Limitations of the Study	Source	Note
Newspaper analysis suggests that open data are frequently discussed in relation to international development. The strength of the digital methods comes from their capacity to take advantage of the data and computational capacities of online platforms; their weakness comes from the difficulty to separate the phenomena that they investigate from the features of the media in which they manifest	Various media effects should be taken into consideration to understand that the observed phenomena are not just hosted and traced by the media in which they occur, but are also deeply shaped by them.	Ther are only discussed various methodological difficulties deriving from the lack of separation between medium and message and propose eight practical precautions to deal with it.	Tommaso Venturini, Liliana Bounegru, Jonathan Gray and Richard Rogers, A reality check(list) for digital methods, new media & society 1–23	Authors provide a basic list of precautions which may be taken when using digital methods.
Expertise presents an enduring political problem. It is, on one hand, essential to a functioning society. On the other hand, it is inextricably entwined with hierarchies and power disparities. A society based solely on the rule of experts would surely be no democracy, yet neither would a society with no experts. It is sensible to promote the spread of expertise through technological literacies and skills. Openness is a requirement for the production and interpretation of scientific expertise.	We need to go beyond easy calls for radical horizontalism and simple critiques of bureaucracies. Communication has a role in this discussion that is not exactly fulfilled by political science, sociology, or STS.	The article is too short to analyse closer and deeper the topic.	Andrew Schrock and Samantha Close, Expertise and the constitution of publics, Communication and the Public 2017, Vol. 2(3) 193–196	The authors hope that this issue reinvigorates thought and debate about the relationship between publics and expertise.
The resulting system has the ability to analyze developments over time, predict the future according to the implicit assumptions in the simulation model, analyze the results according to the rules and facts contained in the knowledge base, and issue recommendations to the user.	A system with these features becomes a powerful planning tool for management decisions, especially for complex projects that require expertise from several different functional areas and disciplines.	Knowledges, techniques, mechanisms and facts stated in this articles are outdated to be judged.	Jorge G. Moser, Integration of artificial intelligence and simulation in a comprehensive decision-support system, Simulation 47-6, 223-229, © 1986 by Simulation Councils, Inc.	The article was published 22 years ago, is outdated.

Key Findings	Recommendations	Limitations of the Study	Source	Note
The authors identify three forms of ordering over time – stable, 'newsy' and mixed rank morphologies. They observe that rankings cannot be easily linked back to popularity metrics, which highlights the role of platform features such as channel subscriptions in processes of visibility distribution. They find that the contents appearing in the top 20 results are heavily influenced by both issue and platform vernaculars. YouTube-native content, which often thrives on controversy and dissent, systematically beats out mainstream actors in terms of exposure.	The formal part of their methodology, based on quantitative measures of change, could be easily applied to thousands of (popular) search queries, allowing for an extensive analysis of ranking patterns on YouTube. Their approach could be further extended in the direction of descriptive assemblage by including other constitutive elements of the YouTube platform, such as recommendation patterns, subscription dynamics, channel networks, production schemes and optimization strategies.	The authors encountered multiple technical constraints in approach and methodology.	Bernhard Rieder, Ariadna Matamoros-Fernández and Óscar Coromina, From ranking algorithms to 'ranking cultures': Investigating the modulation of visibility in YouTube search results, Convergence: The International Journal of Research into New Media Technologies 2018, Vol. 24(1) 50–68	Only a perspective that situates the technical deeply in the social will be able to account for the effects of platform politics.
The threat of fake news for South Africa was not only directed at journalism as such but also against the democratic values of truthtelling, participation and informed decision-making in the public sphere. Fake news has been presented as harmful for South African democratic debate and journalistic values, its emergence has also provided an opportunity for the mainstream journalistic community to re-assert their dominance and re-affirm the professional paradigm of news.	The moral panic that has ensued in the wake of fake news in South Africa should prompt journalists and critics to further engage with questions pertaining to 'truth', 'accuracy' and 'facts' in journalism in this specific context. Such an engagement, especially in an African context of high inequality where the mainstream news has been shown to lack resonance with the experiences of the poor, the marginalised and the youth, is likely to yield more fruit in the long term than a mere rejection of 'fake news' and a re-assertion of the existing journalistic paradigms.	This subject needs further audience research from a critical-cultural, contextual approach, not only an empiricist attempt.	Herman Wasserman, Fake news from Africa: Panics, politics and paradigms, Journalism 1–14, © The Author(s) 2017	This article provided an overview of the varied phenomenon of fake news in the specific context of South Africa and focused on two different types of fake news: political attacks on social media, leading to offline threats to journalists, and spoof websites that provide satirical or fabricated news stories.

Key Findings	Recommendations	Limitations of the Study	Source	Note
This study expands on youth and media research, finding that teens gravitate toward fake news, "snarky" talk radio, and opinionated current events shows more than official news, and do so not because they are disinterested in news, but because these kinds of sites often offer more substantive discussions of the news and its implications. Today, as young people study, work, and live amidst more racial, ethnic, religious, sexual, and political diversity than ever, they are even less inclined to accept news coverage from a single "objective" point of view.	The assumption that newspapers and broadcast news are the primary venues for learning about politics (The Dutiful Citizen model) leads to conclusions that today's youth are uninformed and apathetic. This fails to capture the many socially networked and entertaining ways young people become informed about current events.	Teens (focus group) were to be more detailed split and then examined by age (14 to 19, difference in age one year plays an important role), interests, education and ackground, etc.	Regina Marchi, With Facebook, Blogs, and Fake News, Teens Reject Journalistic "Objectivity", Journal of Communication Inquiry 36(3) 246–262, © The Author(s) 2012	The focus group was very small - 61 respondents.

Supplement 4: Council of Europe: Analytical Overview of Documents on the Convergence and Social Media

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General description of the task

The Council of Europe (CoE) activities comprise a part of the WP1 study "Research agendas and roadmaps" and *Media 21 Foundation* (M21) was entitled to provide information about the output of the organization's bodies for the period 2013 – up to 2018. The M21 was also asked to make conclusions how and to what extent the adopted recommendations, resolutions and decisions impact social media in a convergent era.

In particular, we present an analytical overview of the documents adopted by the Committee of Ministers (CoM) and the Parliamentary Assembly of the Council of Europe (PACE) of the CoE relevant or partly relevant to convergence and social media (SM). The CoM is the CoE's standard-setting body constituted by ministers of foreign affairs of the member states that acts on behalf of the organization. In its standard-setting activity the CoM is assisted by its committees. PACE is the deliberative body of the CoE. It holds governments to account over human rights' violations, and presses states to achieve and maintain democratic standards, both in Europe and – increasingly – in neighbouring regions. PACE demands answers from Presidents and Prime Ministers. It can also recommend sanctions.

The instruments under investigation are not legally binding for member states and other addressees but they have political impact. Though its texts are not obligatory, the PACEfor instance, speaks on behalf of 800 million Europeans.

Within the CoE set of bodies the European Court of Human Rights (ECtHR) occupies a prominent place as an international court securing the highest protection of human rights exercised in the member states. Applications by individuals against contracting states, alleging that the state violates their rights under the European Convention on Human Rights (ECHR), can be submitted by any person, non-governmental

organisation or group of individuals. The ECtHR can entertain also interstate cases. It can issue advisory opinions interpreting the ECHR. The ECtHR jurisprudence has a strong impact on national court practice in European countries as well as on policy and regulation related to social media and convergence.

With regard to the adopted documents legally binding for member states are the ratified conventions concluded under the aegis of the CoE. For the period concerned no conventions directly or indirectly related to convergence and social media were found.

The language of the documents analyzed is rather formal and general, not going to the legislative detail, but the prestige of the international body gives weight to the issues they are focused on. These issues comprise the foundation of the European unity and relate to human rights, democracy and rule of law. The recommendations and resolutions of CoM and PACE are cited by the ECtHR and the Court of Justice of the EU (CJEU) as important sources expanding European theory and practice.

The CoEe bodies develop the standards of the ECHR and its principles distilled in the decisions of the ECtHR.

Though not all of these documents speak directly about convergence and social media as such many of them treat various aspects of the digital society including the stakeholders' dialogue. Therefore, we mark relevance of these documents either as high "H", or as medium "M" or as low "L".

Two seminal CoM documents are included in the list - Recommendation CM/Rec(2011)7 of the Committee of Ministers to member states on a new notion of media *(Adopted by the Committee of Ministers on 21 September 2011 at the 1121st meeting of the Ministers' Deputies)* and Recommendation CM/Rec(2012)4 of the Committee of Ministers to member States on the protection of human rights with regard to social networking services (Adopted by the Committee of Ministers on 4 April 2012 at the 1139th meeting of the Ministers' Deputies)**.** Though adopted before the researched period these documents are directly related to the two central topics of our research – convergence and social media. The former formulates a new broader notion of media based on criteria and indicators rooted in the new convergent environment which demands the application of graduated and differentiated approach media to regulation and the latter states principles that can foster the development and promotion of coherent strategies to protect and promote respect for human rights with regard to social networking services, in line with the Convention for the Protection of Human Rights and Fundamental Freedoms However, the issue of convergence is not in the foreground in this document.

Among the recommendations the Recommendation CM/Rec(2016)2 of the Committee of Ministers to member States on the Internet of citizens stands out. This document focuses at the issue of digitization in the area of culture, while into the domain of "cultural institutions" includes the media, too. Thus, most of the serious points of the recommendation concern the internet and social media, having much to do with the

convergence principle, in the sense of digitization of traditional media and further transformational shift to social media. Another document of high relevance is Recommendation CM/Rec(2018)2 of the Committee of Ministers to member States on the roles and responsibilities of internet intermediaries treating the activties of internet intermediaries which facilitate interactions on the internet between natural and legal persons and moderate and rank content or they may perform other functions that resemble those of publishers.

Another part of the research work focuses on the case law of the ECtHR which is the most influential CoE institution. This task overlaps to a certain degree with the task under WP2 D2 pursuing an empirical research of court cases on social media and convergence across EU member states which should also encompass seminal cases of the ECtHR and the CJEU.

Though the documents discussed are not mandatory for member states and organizations and the decisions of the ECtHR are obligatory only for the states involved they comprise a valuable bulk of sources developing further the principles of the ECHR in the new convergent environment. Recommendations, resolutions and decisions turn the norms of the ECHR from a set of dead principles into a living organism which can be effective in the digital era as well.

Under examination are the decisions that have been taken between the years 2013 – 2017. However, when deciding on the period and the approach for WP2 involved Compact participants agreed on the following principle which is applicable to the court system - not only decisions from the standard five year period to be analyzed but

Table I

TITLE	KEY PRINCIPLES (in general, focus on HR)	KEY POLICIES/ACTIONS with focus at SM	IMPORTANCE for SOCIAL MEDIA AND CONVERGENCE
Recommendation CM/Rec(2016)2 **of the Committee of Ministers to member States on the Internet of citizens** **Relevance: HIGH**	Digital culture (referring also to social networks - SN) is serving citizens; modern culture should be a basis of digital culture.	11. ensuring that all data processing is carried out in conformity with the principles laid down in the Convention for the Protection of Individuals with regard to Automatic Processing of Personal Data (ETS No. 108); 12. creative commons licences but taking intellectual property rights duly into account. 13. Empowering citizens as consumers, creators and prosumers – who can share, disseminate, archive, remix, mash-up copyrighted works 14. Fostering multiliteracy skills in digital culture.	**Current** The factor of convergence not literally mentioned, but present: "**From consumers to prosumers and creative citizens.**" **In near future** A publicly available and sustainable digital space should be set up at the European level and with non-European countries
Recommendation CM/Rec(2018)2 of the Committee of Ministers to member States on the roles and responsibilities of internet intermediaries **Relevance: HIGH**	intermediaries should respect the human rights and freedoms of their users and affected parties in all their actions Access to the internet is a precondition for the exercise of Convention rights and freedoms online support for initiatives promoting media and information literacy skills for accessing and managing the digital space is essential	15. States shall adopt appropriate, non-discriminatory and transparent regulatory framework for information intermediaries with respect to free flow of transborder communication, privacy, data protection and freedom of expression; 16. Internet intermediaries should in all their actions respect the internationally recognised human rights and fundamental freedoms of their users and of other parties who are affected by their activities; 17. Internet intermediaries should carry out regular due diligence assessments of their compliance with the responsibility to respect human rights and fundamental freedoms and with their applicable duties; 18. Internet intermediaries should make available – online and offline – effective remedies and dispute resolution systems direct redress in cases of user, content provider and affected party grievances.	**Current** The recommendation brings concern to internet intermediaries which facilitate interactions on the internet between natural and legal persons and moderate and rank content or they may perform other functions that resemble those of publishers. Intermediary services may also be offered by traditional media, **In near future** Adoption of appropriate legal measures which would address the functions, importance and the role of internet intermediaries. Although not explicitly, social media and convergence are very important for the assumptions expressed in the document.

TITLE	KEY PRINCIPLES (in general, focus on HR)	KEY POLICIES/ACTIONS with focus at SM	IMPORTANCE for SOCIAL MEDIA AND CONVERGENCE
Recommendation CM/Rec(2016)2 **of the Committee of Ministers to member States on the Internet of citizens** **Relevance: HIGH**	Digital culture (referring also to social networks - SN) is serving citizens; modern culture should be a basis of digital culture.	19. ensuring that all data processing is carried out in conformity with the principles laid down in the Convention for the Protection of Individuals with regard to Automatic Processing of Personal Data (ETS No. 108); 20. creative commons licences but taking intellectual property rights duly into account. 21. Empowering citizens as consumers, creators and prosumers – who can share, disseminate, archive, remix, mash-up copyrighted works 22. Fostering multiliteracy skills in digital culture.	**Current** The factor of convergence not literally mentioned, but present: "**From consumers to prosumers and creative citizens.**" **In near future** A publicly available and sustainable digital space should be set up at the European level and with non-European countries
Recommendation CM/Rec(2018)2 of the Committee of Ministers to member States on the roles and responsibilities of internet intermediaries **Relevance: HIGH**	intermediaries should respect the human rights and freedoms of their users and affected parties in all their actions Access to the internet is a precondition for the exercise of Convention rights and freedoms online support for initiatives promoting media and information literacy skills for accessing and managing the digital space is essential	23. States shall adopt appropriate, non-discriminatory and transparent regulatory framework for information intermediaries with respect to free flow of transborder communication, privacy, data protection and freedom of expression; 24. Internet intermediaries should in all their actions respect the internationally recognised human rights and fundamental freedoms of their users and of other parties who are affected by their activities; 25. Internet intermediaries should carry out regular due diligence assessments of their compliance with the responsibility to respect human rights and fundamental freedoms and with their applicable duties; 26. Internet intermediaries should make available – online and offline – effective remedies and dispute resolution systems direct redress in cases of user, content provider and affected party grievances.	**Current** The recommendation brings concern to internet intermediaries which facilitate interactions on the internet between natural and legal persons and moderate and rank content or they may perform other functions that resemble those of publishers. Intermediary services may also be offered by traditional media, **In near future** Adoption of appropriate legal measures which would address the functions, importance and the role of internet intermediaries. Although not explicitly, social media and convergence are very important for the assumptions expressed in the document.

TITLE	KEY PRINCIPLES (in general, focus on HR)	KEY POLICIES/ACTIONS with focus at SM	IMPORTANCE for SOCIAL MEDIA AND CONVERGENCE
Recommendation CM/Rec(2011)7 **of the Committee of Ministers to member states on a new notion of media** **Relevance: HIGH**	**Adopt s a new, broad notion of media review regulatory needs in respect of all actor multistakeholder dialogue** a satisfactory level of pluralism, diversity of content and consumer choice and ensure close scrutiny or monitoring of developments;	27. **a graduated and** differentiated **approach**	Elaboration of new definitions with respect to social media platforms **sets the six criteria in the appendix when considering a graduated and differentiated respons**
Recommendation CM/Rec(2012)4 of the CoM to member States on the protection of HRs with regard to social networking services **Relevance: MEDIUM**	28. Helping users to deal with a variety of aspects SN – predominantly: 29. protection of minors 30. protection of personal data 31. challenges to HR and freedoms on SN.	32. Push to provide an enabling human rights' exercise environment 33. Awareness-raising among users 34. Protect users by legislation and public policies from harm 35. Protect users from illegitimate date processing, improve transparency of services 36. Set up self- and co-regulatory mechanisms. 37. procedural safeguards should be respected, in line with the right to be heard and to review or appeal against decisions, including in appropriate cases the right to a fair trial, within a reasonable time	**Currently & in near future** Summarizes the domains where issues related to the HR are sensitive on SN. In a broad manner, shows possibilities and necessities related to HR protection in the SN environment. Still, does not mention the aspect of convergence of social media. recommends that member States develop and promote coherent strategies to protect and promote respect for human rights with regard to social networking services

TITLE	KEY PRINCIPLES (in general, focus on HR)	KEY POLICIES/ACTIONS with focus at SM	IMPORTANCE for SOCIAL MEDIA AND CONVERGENCE
Internet governance strategy 2016-2019 (IGS) **(mandatory for the CoE and the CoM)** **Relevance: MEDIUM**	38. Protecting the Internet's universality, integrity and openness. 39. Protecting and empowering citizens without hindering their freedom to use the Internet. 40. Protecting Internet users from violent extremism, cyber-crime, hate speech, exploitation, harassment and bullying.	Complex of tasks and actions aimed to promote and support the key principles. Among them: Further developing World Forum for Democracy – a network of digital democracy innovators; Exploring and proposing measures to prevent hate speech online Launching a process leading to white paper on media and information literacy Promote the accession of countries worldwide to the Budapest Convention on Personal Data Establishing a PPP platform dealing with the issue of human rights online	**Currently & in near future** CoE wants to enhance the Internet environment as for accessibility, safety, non-violating HR etc., so that it includes social media issue, too. At the same time, it aims to improve media and information literacy of people by a set of measures like education on digital citizenship in the schools, promotion of networks fostering competences for democratic culture etc. CoE is also focusing on the role of media, both "new" and traditional, as enablers of access to pluralistic and diverse information. The organization addresses the question of filtering Internet traffic and interfering with the content on the Internet. Challenges in this area similarly relevant and include the social media as well as the SM convergence, although this term is not used.
Recommendation CM/Rec(2014)6 of the Committee of Ministers to member States on a Guide to human rights for Internet users **Relevance: MEDIUM**	41. Access to information which should be affordable and non-discriminatory, Freedom of expression and information, Assembly, association and participation, Privacy and data protection, 42. Protection of children and young people 43. Effective remedies	44. Push to provide a ground to assess, regularly review and, as appropriate, remove restrictions regarding the exercise of rights and freedoms on the Internet 45. supports users to understand and effectively exercise their human rights online 46. ensures that users have access to effective remedies 47. Make providers of online content and services responsible for respecting human rights.	**Currently & in near future** Tackles HR issues on Internet and SN in various aspects, especially in data protection, protection from harm, protection of children and youth. Touches the question of contents on SN, however, does not mention the aspect of convergence.

TITLE	KEY PRINCIPLES (in general, focus on HR)	KEY POLICIES/ACTIONS with focus at SM	IMPORTANCE for SOCIAL MEDIA AND CONVERGENCE
The Council of Europe Strategy on the Rights of the Child (2016-2021) **Relevance: MEDIUM**	48. Guaranteeing children's rights and safety in the digital environment 49. Children should be able to be empowered to fully participate, express themselves, seek information and enjoy the proper rights on the Internet.	50. Follow-up of the "No Hate Speech" campaign 51. Action Plan "The fight against violent extremism and radicalization leading to terrorism" (2015)	**Current** Warns before hate speech on social media that is used to advocate radicalization and terrorism among young people. **In near future** CoE will continue to develop and implement child-related standards, policies and activities. Will launch a pan-European project on digital citizenship education. SN are an important tool for that; the convergence aspect is not directly mentioned.
Report by the Secretary General about the implementation of the Strategy (2012 – 2015) 1251 Meeting, 15-16 March 2016 /1 General questions / 1.6 The Council of Europe Strategy on Internet Governance (2012-2015) **Relevance: MEDIUM**	52. Protection of human rights and democracy in online environment 53. Protecting the Internet's universality, integrity and openness 54. Protection and empowerment of children and young people in the digital age 55. Data protection and privacy	Reported set of 43 actions – documents, conferences, campaigns - within 6 action lines executed by CoE bodies: Action Line I. Protecting the Internet's universality, integrity and openness Action Line II. Maximizing rights and freedoms for Internet users Action Line III. Advancing privacy and data protection Action Line IV. Enhancing the rule of law and effective co-operation against cybercrime Action Line V. Maximising the Internet's potential to promote democracy and cultural diversity Action Line VI. Protecting and empowering children and young people Included No Hate Speech Movement educating young SN users as well as other programs aiming at SN environment.	**Currently & in near future** The report evaluates the achievements under the CoE strategy on Internet governance – 2012 – 2015. It claims that a large majority of deliverables were completed. Moreover, some campaigns´ impact may be seen as rather limited. For example, No Hate Speech Movemet reported presence in 37 countries (with over 18,000 Facebook users and more than 14,000 Twitter users), trained more than 350 activists. This means that on average it reached 500 FB users per country.

TITLE	KEY PRINCIPLES (in general, focus on HR)	KEY POLICIES/ACTIONS with focus at SM	IMPORTANCE for SOCIAL MEDIA AND CONVERGENCE
Resolution 2143 (2017) Online media and journalism: challenges and accountability **Relevance: MEDIUM**	56. Freedom of expression 57. Accountability 58. Protection against false information and information distortion. 59. Enabling public service broadcasters to make full use of the technical possibilities offered by online media, ensuring that their internet presence complies with the same high editorial standards as offline. 60. Recognition of the right of reply or any other equivalent remedy which allows a rapid correction of incorrect information in online and offline media.	61. Prominent online media have established a policy whereby users can identify factual errors or false posts by third parties on their websites, such as on Facebook News Feed or through Google's "webpage removal request tool". 62. Ensure the traceability by law-enforcement authorities of users of online media when they violate the law; online media must not become a lawless zone. 63. Develop media literacy. 64. Support professional journalistic training, ranging from higher education to lifelong learning, apprenticeships offered by online media as well as "citizen journalism" education for the general public. 65. Set up guidelines which are inspired by the code of conduct countering illegal hate speech online agreed upon by the European Commission and major internet companies on 31 May 2016. 66. the European Internet Services Providers Association call on its members which provide social media, search engines and news aggregators to voluntarily correct false content or publish a reply and set up alert mechanisms against people who regularly post insulting or inflammatory text ("trolls"), which empower users to complain about these trolls, with a view to excluding them from their forums. 67. the European Interactive Digital Advertising Alliance develop self-regulatory standards to ensure that disclose to the public the person, organisation or company by whom they are commissioned 68. the European Interactive Digital Advertising Alliance develop self-regulatory standards to ensure disguised advertising and lobbying are barred by professional media on the internet as well as by providers of social media, under their terms of service.	**Current** 69. Boosting discussions on norms and mechanisms required for preventing the risk of information distortion and manipulation of public opinion, as already suggested in Assembly Resolution 1970 (2014) "Internet and politics: the impact of new information and communication technology on democracy". 70. Enhancing self-regulation of social media and users through civil society associations. **In near future** Elaboration of policy that can protect better the rights of online users and cope with false content and information disorder, supporting self- and co-regulation and media literacy online following the example of Brazilian Law No. 12965 of 23 April 2014 on civil rights on the internet (Marco Civil da internet), and the "Declaration of internet rights" adopted by the Italian Parliament on 28 July 2015. Convergence is not directly mentioned.

TITLE	KEY PRINCIPLES (in general, focus on HR)	KEY POLICIES/ACTIONS with focus at SM	IMPORTANCE for SOCIAL MEDIA AND CONVERGENCE
Resolution 1970 (2014) Internet and politics: the impact of new information and communication technology on democracy **Relevance: MEDIUM**	democracy, online democracy. Internet openness and neutrality, Internet control, self-regulation	71. increase the capacity of the political – and in particular the parliamentary – institutions to use new information and communication technology to improve the transparency of the decision-making process and dialogue with citizens, in particular through social networks, parliamentary Internet channels and other platforms allowing citizens to provide feedback. 72. develop targeted Internet training programmes for elected representatives, modernising the websites of parliaments and governments and improving the use of online consultation and participation facilities; 73. promote the convergence of education in the new media and education for democratic citizenship and human rights; 74. launch the preparation of a Council of Europe white paper on democracy, politics and the Internet set out by the Assembly in its Recommendation 2033 (2014) "Internet and politics: the impact of new information and communication technology on democracy; 75. in close co-operation with the European Commission for Democracy through Law (Venice Commission) start work on elaborating a protocol to the European Convention on Human Rights on the right to participate in the conduct of public affairs, as stressed in Resolution 1746 (2010) and Recommendation 1928 (2010) "Democracy in Europe: crisis and perspectives", and pay special attention to the role of the Internet and other digital tools of participation, such as social networks, online discussion platforms, electronic voting and open government initiatives.	**Current** 76. Raise awareness about the link between Internet and politics and citizens participation through websites and other platforms. 77. Serve as a basis of preparing training courses and materials on this. 78. Promote the idea of democratic citizenship. **In near future** 79. Preparation of a white paper on democracy, politics and the Internet. 80. Preparation of an additional protocol to the ECHR on the right to participate in the conduct of public affairs with the use of new platforms and networks, recognizing a new human right. 81. Elaboration of appropriate policy and legislative acts to implement the requirements of the recommendation at a national level. Convergence is not directly mentioned.

TITLE	KEY PRINCIPLES (in general, focus on HR)	KEY POLICIES/ACTIONS with focus at SM	IMPORTANCE for SOCIAL MEDIA AND CONVERGENCE
Recommendation 2048 (2014) Violence in and through the media **Relevance: MEDIUM**	Protection of human rights and especially children's rights against hate speech and violence	82. The Committee of Ministers to prepare practical guidance to parents, teachers and providers of media services and products on how to deal with violence in the media and its effects on individuals and society as a whole, and how to counteract its potential impact; 83. Establish partnership with private enterprises and EU and UNESCO to elaborate standardised rating of violent content by the producers and access providers of such content throughout Europe and beyond.	**Current** 84. Raises awareness against hate speech and violence in and through the media. **In near future** 85. Preparation of guidelines that can serve as a basis of self-regulation of the media and possibly adequate policy and regulation. Convergence is not directly mentioned.
Recommendation CM/Rec(2016)5[1] of the Committee of Ministers to member States on Internet freedom **Relevance: LOW**	86. Internet freedom as a complex and comprehensive notion. 87. Internet freedom is based on human rights and freedoms. Individuals are basically free to use Internet platforms including SM for social and commercial purpose.	88. Formulation of internet freedom indicators by member states. 89. Periodical evaluation of human rights and freedoms on the Internet together with stakeholders from the private sector, civil society, academia and the technical community. 90. Preparation of national reports with regard to Internet freedom and sharing on a voluntary basis. 91. Promotion of the United Nations "Guiding Principles on Business and Human Rights: Implementing the United Nations 'Protect, Respect, and Remedy' Framework"	**Current** Binding the member states that any measure taken by their state authorities or private-sector actors to restrict access to an Internet platform including SM must comply with the European Convention on Human Rights and international standards. Provides indicators for the implementation of a voluntary mechanism of assessment of the national level of Internet freedom. **In near future** Helps the elaboration of adequate national policy and legislation fostering Internet freedom. Convergence is not directly mentioned.

TITLE	KEY PRINCIPLES (in general, focus on HR)	KEY POLICIES/ACTIONS with focus at SM	IMPORTANCE for SOCIAL MEDIA AND CONVERGENCE
Recommendation CM/Rec(2015)6 **of the Committee of Ministers to member States on the free, trans-boundary flow of information on the Internet** **Relevance: LOW**	The unimpeded, transboundary flow of information on the Internet is critical for the full realization of some of basic rights and freedoms, safeguarding pluralism and diversity in culture. States have an obligation to guarantee this within their jurisdiction.	States should exercise due diligence when assessing, developing and implementing their policies; avoiding damage to the free transboundary Internet traffic. States and other stakeholders should encourage, facilitate and support self-regulatory codes.	The document deals with guaranteeing a free transboundary flow of information on the Internet as well as questions of collisions national jurisdictions and international cooperation. That relates and influences social media, too, however, they are not directly mentioned.
Recommendation CM/Rec(2016)1 **of the Committee of Ministers to member States on protecting and promoting the right to freedom of expression and the right to private life with regard to network neutrality** **Relevance: LOW**	Access to diverse and pluralistic information and public service media content on the Internet is important for democracy and cultural diversity. The principle of network neutrality underpins non-discriminatory treatment of Internet traffic and the users' rights. 92. Equal treatment 93. Pluralism and diversity of information 94. Protection of privacy on the net 95. Transparency of the Internet	Member states to take all the necessary measures, in co-operation with other stakeholders, to safeguard the principle of network neutrality in their policy frameworks; to promote the CoE guidelines in other international fora that deal with the issue. 96. Internet traffic should be treated equally, without discrimination, restriction or interference irrespective of the sender, receiver, content, application, service or device. 97. Internet users should be well informed 98. Internet service providers should put in place efficient procedures to respond complaints.	The document deals with the issues of equal treatment of Internet traffic (network neutrality), pluralism and diversity of information, privacy, transparency and accountability. That relates and influences also social media. However, they are not directly mentioned.

TITLE	KEY PRINCIPLES (in general, focus on HR)	KEY POLICIES/ACTIONS with focus at SM	IMPORTANCE for SOCIAL MEDIA AND CONVERGENCE
Recommendation 2102 (2017) Technological convergence, artificial intelligence and human rights **Relevance: LOW**	99. Protection of human dignity and other human rights 100. Protection of personal data	101. Finalization and the modernisation of the Convention for the Protection of Individuals with regard to Automatic Processing of Personal Data (ETS No. 108) ; 102. Drawing up guidelines about collecting, handling and using personal data; informing the public about the value of the data they generate, consent to the use of those data and the length of time they are to be stored, the processing of personal data originating from them and about the mathematical and statistical methods making profiling possible, the design and use of persuasion software and of information and communication technology (ICT) or artificial intelligence algorithms	**Current** 103. Improvement of data protection policy **In near future** 104. The recognition of new rights in terms of respect for private and family life, the ability to refuse to be subjected to profiling, to have one's location tracked, to be manipulated or influenced by a "coach" and the right to have the opportunity, in the context of care and assistance provided to elderly people and people with disabilities, to choose to have contact with a human being rather than a robot; 105. Elaboration of appropriate policy and legislation. 106. Unlike technological convergence in broader sense, convergence with regard to social media is not the target phenomenon of this recommendation.
Study on the human rights dimensions of automated data processing techniques (in particular algorithms) and possible regulatory implications **Relevance: LOW**	algorithmic decision-making has human rights, ethical and legal implications	107. Public entities should be held responsible for the decisions they take based on algorithmic processes; 108. To ensure compliance with human rights, certification and auditing mechanisms for automated data processing techniques such as algorithms should be developed.	A standard setting instrument **on the basis of the study** on the human rights dimensions of automated data processing techniques (in particular algorithms and possible regulatory implications) shall be prepared. Convergence is not directly mentioned.

TITLE	KEY PRINCIPLES (in general, focus on HR)	KEY POLICIES/ACTIONS with focus at SM	IMPORTANCE for SOCIAL MEDIA AND CONVERGENCE
Intellectual property rights in the digital era (2016) Resolution and recommendation **Relevance: LOW**	109. Protection of intellectual property rights 110. Protection of rights	111. Adoption of legislative and other measures to establish the infringement of intellectual property rights as a criminal offence under domestic law in accordance with Article 10 of the Convention on Cybercrime. With regard to this the Cybercrime Convention Committee should draw up guiding principles on legal and practical measures against the infringement of copyright and related rights, in accordance with Article 10 of the Convention on Cybercrime; 112. the Parties to the European Convention on the Legal Protection of Services based on, or consisting of, Conditional Access (ETS No. 178) to study the effectiveness of domestic law and practice in accordance with Article 4 of that convention as regards the protection of intellectual property rights; 113. establish, practical co-operation to combat piracy with the European Observatory on Infringements of Intellectual Property Rights and Europol.	**Current** 114. Create adequate international policy against piracy online with a special on operators of Internet-based social networks and platforms with user-generated content, which benefit financially from illegal content posted on their sites. **In near future** 115. Amend existing or create new legislation protecting copyright holders online against copyright infringements and illegal use of protected materials by networks and platforms. Convergence is not directly mentioned athis document is not very relevant for the topic.

Supplement 5: Research Agendas and Roadmaps on Social Media and Convergence in the Czech Republic, Hungary, Poland and Slovakia

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Abstract:

This study was conducted to investigate academic research on social media and convergence in four Central-Eastern European countries: Czech Republic, Hungary, Poland, and Slovakia. Selection of above-mentioned countries was based on their geopolitical location: they are digitally well-developed free-market countries with similar social and economic profiles. For this purpose, data were elicit from available litterature, published mostly in regional journals between 2013-2017. This paper focuses on the relevance of social media in these countries as well as how this relevance is reflected in research on social media and convergence by local researchers. In particular, this paper highlights the relative paucity of knowledge regarding convergence and social media. Our study also pinpoints the flaw of knowledge of researches and their inappropriate activities to publish fake data in local or international journals. Moreover, we provide some suggestions for future research on social media and convergence. This study would also act as a baseline for enhancing understanding of current issues in research on social media and convergence.

Keywords: convergence, social media, research, Czech Republic, Hungary, Poland, Slovakia

Introduction

The purpose of this study is meta-research on academic research on social media and convergence in four Central-Eastern European countries: Czech Republic, Hungary, Poland, and Slovakia. Often, these countries are referred to as Visegrad Four or V-4. The selection of these four countries for further comparative analysis is based on their geographical location and political past as well as geopolitical location within the European

[29] This is the partial output of WP1 of COMPACT *COMPACT: FROM RESEARCH TO POLICY THROUGH RAISING AWARENESS OF THE STATE OF THE ART ON SOCIAL MEDIA AND CONVERGENCE* Website: compact-media.eu Project Number 762128 Topic: ICT-19-2017 CALL: H2020-ICT-2016-2017

Union. Thus, this study offers regional perspectives within a rather specific academic research arena. The issue of convergence is certainly among the most challenging current research and policy-making issues that is faced by both legacy media and social media. We live in the age where the famous prophecy was made by Jenkins in 2001 that already becomes reality: "We are entering an era where media will be everywhere, and we will use all kinds of media in relation to one another." However, we know nothing about research agendas and perspectives of researchers from these four Central-Eastern European countries on this complex issue. Obviously, the research is fragmented as researchers publish their data in local journals and in local languages. Thus, it is rather difficult to get an overview of local research. Moreover, convergence is a multifaceted issue – there are many types of research and practices as well as policy aspects that can be seen as being part of convergence phenomena. Therefore, to help researchers to find some overview of V-4 research agendas, we pose specific research questions in the analytical part of this article. In the following sections, we define both social media and convergence. Then we inform about social media usage in V-4 countries. This data will allow us to understand the relevance of social media in these countries as well as how this relevance is reflected in research on social media and convergence by local researchers. In the next part, we will discuss methodology which has been extensively refined. It will be shown that there are many methodological challenges that impacted this study. In the key analytical part, selected parameters of research results are internationally compared. In the nutshell of our findings, some suggestions for future research on social media and convergence are discussed.

Definitions of Social Media and Convergence

In this section, we will define social media and convergence comprehensively. Social media is 'an umbrella name' (Tench and Yeomans, 2009: 313 in Komodromos, 2016). Indeed, Encyclopaedia Britannica differentiates among a) social media, b) social networking sites and c) social networking services. Encyclopaedia Britannica defines social media as technologies, platforms, and services that enable individuals to engage in communication from one-to-one, one-to-many, and many-to-many". Encyclopaedia Britannica defines social networking sites where members with shared interests swap files (photographs, videos, and music), communicate, set up blogs (Web diaries) share opinions[30]. According to Safko (2009:5), social media refers to activities, practices, and behaviors among communities of people who gather online to share information, knowledge, and opinions using conversational media." Safko also uses a term, "conversational media" that defines as: "Web-based applications that make it possible to create and easily transmit content in the form of words, pictures, videos, and audio among users."

(Kaplan and Haenlein 2010, in Komodromos 2016) argue that social media include: collaborative projects such as Wikipedia, blogs, and microblogs (e.g. Twitter), content sharing platforms (e.g. YouTube), social networking sites (e.g. Facebook), virtual game worlds (e.g. World of Warcraft), and virtual social worlds (e.g. Second Life). There are also the communities and fora, including discussion-based fora, review communities or DIY communities, where individuals or groups create their own social network using services.

[30] https://www.britannica.com/technology/Internet#ref1180858

Although there is a lack of agreement what we understand as social media, more importantly, the lack of consensus is reflected in the definition of convergence. Clearly, even the definition of convergence varies, depending on an author and period. In fact, the definition of convergence evolves over time.

In the most general and traditional terms convergence means areas or processes coming together. There is no one accepted definition of convergence. The available definition is often rendered in a more or less descriptive manner. This is related to the fact that media convergence can be explained in many ways - through the convergence of the media and the telecommunications' sectors, through the convergence of the media and the new communications services and the emergence of common platforms and services between various operators, hardware and software manufacturers, print, electronic and new communication service outlets and the Internet service providers, or as the convergence of various networks or different media content in the digital age. Henry Jenkins claimed in 2001 that convergence is "the flow of content between various media platforms, the cooperation of various media industries and the migratory behavior of media recipients who will reach almost anywhere, seeking the entertainment they want." Jenkins added that "today we are no longer talking about the digital revolution, which predicted that the old media will be replaced with new ones. Now we are talking about media convergence, where old and new media are entering more and more complex interactions."

There are virtually scores of academic articles (at least two specialized academic journals) that discuss directly various aspects of convergence and hundreds of articles that discuss indirectly minor or major aspects of convergence. Out of this number, two authors seem to be bringing novel insights. Thimm (2017) argues that convergence has started to reach a level of complexity which can no longer be embraced by the convergence concepts alone. For Thimm, convergence as a term traditionally implies a transition process, for which many new social media platforms does not seem to be applicable anymore since they are already polymediated by nature. Montpetit (2016) also argues that there are already two chronologically but also thematically different phases of convergence. According to his view, there was the first convergence, based on, and dominated by technology and networks. The first convergence is followed by the second convergence, defined as “the media convergence”. The second convergence has (not only) in his view much broader impacts – it is melding technology, business and marketing models, social networks and legacy media.s. Montpetit also writes that there are new converged solutions – cloud-based computing and applications, content-centric networking and big data, adding social networking and crowdsourcing to traditional content production to produce novel methods of acquisition and dissemination of content. It appears that convergence is no longer only about social media. Finally, in Montpetit view, with the melding between the social and the physical networks, between locations and real and virtual reality, convergence is becoming an ideation platform. This can be indeed seen in the following section.

Social Media Usage in V-4

This section is based only on "traditional" social media data. It would be certainly more proper to include statistics on cloud-based computing and applications, content-centric networking and big data in V-4 countries. This would allign our understanding of covergence with the current understanding and usage of the term. However, such comparative and comparable recent data are not available in already published regional or global reports such as Reuters Digital News Report 2018 (RDNR2018). Simply, comparative social sciences on convergence are lagging behind rapid technological developments that facilitate ongoing second convergence.
Eurostat data for 2016 shows that comparatively, within the EU, the Czech Republic was found among countries with the least popular social media, closely followed by Poland. Slovakia was found in the middle (but above EU average), while Hungarians were among top social media users, tied with Malta and Belgium (people aged 16-74).[31] Surprisingly, Belgium, Malta, and Hungary are rather dissimilar in socio-political, geographical and historical parameters. In other words, it is difficult to explain why there are many similar key aspects in different countries of popular social media.

There are some similarities among users of social media among V-4 countries. As it is clear from Table 1 in all four countries, Facebook is the top social medium. It should be mentioned here that Hungary used to have its own version of Facebook called iWiW. The Czech Republic, Slovakia, and Poland all have their own national social networks similar to Facebook (pokec.cz, pokec.sk, and NK.pl respectively). This may explain the comparatively higher popularity of Facebook in Hungary. Some Hungarian social scientists tend to explain this Hungarian uniqueness by psychological-historical and political reasons (in Peleschuk, 2017). Although the Reuters Digital News Report (RDNR2018: 84) tackled this issue, it did not provide a clear answer either: "Hungary also suffers from low trust in institutions in general while there tends to be a strong reliance on personal, informal networks. This helps to explain the high usage of social media in Hungary, though it is worth noting, if slightly surprising, that only 27% trust the news accessed this way." Perhaps the explanation of the higher popularity of Facebook in Hungary thus may be much simpler – in addition to the higher popularity of social media in general, there is no alternative local social network of similar characteristics as is Facebook. In any case, it is unclear why these national social networking sites are not stated in the case of the Czech Republic and Poland in the RDNR2018. Antonis Kalogeropoulos, the co-author of RDNR2018, explained that "we actually ask for nk.pl in Poland but it is reached is smaller than the top 6 networks we report. We ask for Pokec in Slovakia where it has a wide reach (14%) but not in the Czech Republic."[32] Nonetheless, perhaps researchers should include alternative relevant local social networks of similar type. It is less meaningful to compare e.g. Twitter with Facebook rather than Facebook with Nasza Klasa in Poland. Although Nasza Klasa has only about 7 % of users compared to Facebook (Kulik, 2018), and popularity of Nasza Klasa is much lower today than it was a few years ago, the omission of this fact can lead to a wrong interpretation of the popularity of social communication tools in Poland. It appears that the Czech pokec is indeed marginal social networking site.

Although YouTube is rather popular in all four countries, it is marginally researched in comparison with

[31] https://ec.europa.eu/eurostat/web/products-eurostat-news/-/DDN-20170713-1

[32] E-mail from antonis.kalogeropoulos@politics.ox.ac.uk, August 30, 2018

Facebook, as will be shown later. Much more researched is Twitter which is comparatively at both national and international V-4 level less popular social network, while as will be shown, other similarly popular social media are less researched by local researchers.

Table 1: Top Social Media in V4 (Any purpose)

	Czech Republic	Hungary	Poland	Slovakia
Facebook	77%	81%	73%	73%
YouTube	65%	75%	71%	64%
Facebook Messenger	47%	58%	44%	45%
WhatsApp	24%		19%	
Google Plus		13%	13%	14%
Twitter	11%	13%	17%	
Instagram	16%	20%		18%
Pokec.sk				14%

Source: compiled from Reuters Digital News Report 2018[33]

If we compare these data with the previous year (Table 2), we can see an increase in interest in Facebook, YouTube and Facebook Messenger in the Czech Republic. The other three countries do not show a change in Facebook usage and only a marginal increase in interest in YouTube. However, Facebook Messenger usage seems to be on the rise in all four countries. In otheer words, messaging replaces sending sms - this requires new research, too.

Table 2: Top social media and messaging (All purpose)

	CZ	HU	PL	SK
Facebook	69%	81%	73%	74%
YouTube	57%	72%	67%	60%
Facebook Messenger	33%	48%	32%	35%
Twitter		15%		
WhatsApp	18%		16%	
Pokec.sk				15%
Google Plus	9%		15%	15%
Viber		25%		

Source: compiled from Reuters Institute Digital News Report 2017

[33] http://media.digitalnewsreport.org/wp-content/uploads/2018/06/digital-news-report-2018.pdf?x89475

It seems useful to present data on the usage of social media for news consumption. As can be seen from Table 3, Facebook is still dominant here, but more equally among all four countries, as well as less significant compared to its use for social interaction and other purposes.

Table 3: Top Social Media in V4 (For news)

	Czech Republic	**Hungary**	**Poland**	**Slovakia**
Facebook	57%	60%	54%	51%
YouTube	26%	29%	37%	23%
Facebook Messenger	16%	11%	13%	14%
WhatsApp	7%		6%	
Google Plus		6%	6%	7%
Twitter	5%	5%	8%	
Instagram	4%	4%		5%
Pokec.sk				

Source: compiled from Reuters Digital News Report 2018

In summary, social media are an important subject to study. Moreover, following above mentioned discussions on convergence, it is clear that social media are the key part of convergence. However, it will be shown that attention paid by researchers to particular social media is imbalanced in all of these four countries. This lack of research attention can have significant consequences on our understanding of their roles in these societies.

Methodology

We have focused on the last five years from 2013 to 2017. Of course, the research and academic discussions about social media and convergence have been around for a longer period, and continue. However, there are human and financial limits. Our aim was to find out publications written by local researchers, and published regionally and internationally. For that purpose, we searched and found many local academic journals, often available in online editions only. In the final phase, we used e-mail contacts usually stated in articles, and contacted authors with the request for double-checking the sample and request to suggest additional items. This has brought only limited feedback.

Now there is a legitimate question how much is this sample representative. It is difficult to answer this question. Although we have tried to make our sample as representative as possible, we never aimed at having 100% sample, but about 90%. We do not know whether we reached that goal for reasons discussed above. Yet it is both illustrative and indicative that partners who were supposed to search in an identical way for articles in other countries achieved much limited results. For example, a foreign partner found only some 25 articles on social media and convergence for Germany and eight for Austria, while another foreign partner found over 110 and 45 articles respectively for these countries (obviously, during the same period). A British partner found

only some 40 articles on social media and convergence for the UK while another partner found over 110 articles on social media and convergence for the UK. Considering our samples comparatively (both UK and Germany are much bigger countries that anyone of four countries in our sample, with the partial exception of Poland), we may safely claim high representativness of our sample. We have found many articles – over 100 each for Hungary, the Czech Republic and Poland respectively, and over 300 for Slovakia. However, we were not always able to find full text articles. The Slovak case is atypical not because of special attention paid by local researchers to the issue of convergence and social media, but we did a very detailed and broad search in this case. Clearly, although Slovak sample is the largest, this does not mean that it also qualitatively rated above average, as we will discuss later.

We searched all local journals and edited volumes, including Ph.D. students' papers. Moreover, we understood the term convergence very broadly. The traditional approach would be based on the following keywords: social media, convergence, and possibly selected social media like Facebook, Twitter, Instagram, blog etc. as well as their combinations. However, after pilot studies, we have found there are very few articles that deal specifically and knowingly with convergence. In other words, the majority of authors researched various aspects of convergence but either was not aware of this fact that they were actually researching aspects of convergence or of this particular term. In other aspects, convergence was often used as a keyword in their articles. Thus, the most proper approach to this challenge was to focus primarily on our search at keywords “social media" either in general or in particular, (e.g. Facebook). Then we tried to identify, scanning visually each article, whether it fits into our focus of interest. If we accept a broad definition of convergence discussed above, one can at the same time claim that especially Slovak samples actually cover possibly 90% of all research done on social media in general. Obviously, there have emerged new definitional challenges. For example, can be an article focused on big data analysis (of social media) considered as a part of our research focus? There are certainly aspects of convergence, but how relevant are these? These cases had to be decided on a case by case basis.

The identified articles and studies have been coded. For this purpose, we have developed detailed codebook or manual (available at www.compact-media.eu). Moreover, we have compiled and selected findings and recommendations for further use. These best findings and recommendations create a separate file with the more extensive analytical part. This information is freely available to other researchers, either at the project´s website (compact-media.eu) or at the key author of this study.

The coding has been double-checked internally, independently by another researcher. The coding included many parameters. We mention only the most relevant ones here.

Firstly, these included keywords – this should make an easier future search in our dataset. However, we usually omitted such obvious keywords as social media and convergence, since the whole sample is based on these two keywords.

Second, we included short abstracts of the papers that usually followed the standard style of academic papers. Third, and perhaps most useful (at least in our sample „best of the best“) was a section that summarised findings and recommendations. This was also perhaps one of the most challenging tasks. We have found that

in the majority of studies actually there was no single and succinct section that would provide either findings or recommendations. We had to read through the whole article and identify both findings and recommendations throughout the text. Yet this approach served another purpose too. We identified the overall research and academic quality of each paper. Based on identifiable findings and recommendations (in the latter, usually missing in most cases, or identifiable indirectly only), we have assigned numerical value 1, 2, or 3 to each article. The number 1 meant that article was assessed as of highest value (locally or internationally), while value 2 put the article in the middle, with some value of either findings or recommendations, while value 3 put the article at the very bottom of overall importance and in that sense, quality of results.

Of course, this task would be best served by top experts in the field, who would command an excellent overview of state of the art. Unfortunately, we did not have such an opportunity and in fact, there could be hardly found such experts in these four countries. Therefore, we had to rely on the independent assessment by two, and sometimes even three experts and non-experts. Thus, the final results represent prevailing consensus. High value: It is directly related to social media and convergence. The findings seem to be innovative and important (practically or scientifically in a sense of applied or basic research). Medium value: It is directly related to social media and convergence. The findings seem to be less important. Low value: It is only indirectly or marginally related to social media and convergence and/or the findings are insignificant. This also includes articles that actually *de facto* summarize findings from international sources. Thus, these articles may be seen domestically as highly relevant, but they are actually not relevant internationally (a difference between summaries and meta-analysis).

In any case, our Best of the Best selection includes both articles with value 1 and selected articles with value 2. We have tried in this way to eliminate possible error in quality assessment. In other words, in case of doubt, we moved an article into a higher category in the final selection.

Fourth, we were interested in methodology or type of research used by studied researchers or rather their outputs. We have suggested the following categories: (1) basic research exploring research basic issues with no immediate practical (and monetizable) results as such. (2) applied research, researching specific aspects of the subject usually with some possible practical knowledge as a result. (3) Non-scientific - allegedly scientific articles – one may find articles that actually do not fulfill basic expectations with regard to scientific output (these were after double-checking excluded from detailed analysis), and (4) border case (includes basic and applied research).

Fifth, we were interested what purpose serves the social media in research. Clearly, social media can be seen as a tool for (1) getting information, (2) making connections, (3) providing or facilitating education,(4) enabling hobby/entertainment, (5) serving for marketing purpose, (6) studying as technology. Since categories could be expanded, we have left an option for addition (7) as well as (8) option no/difficult to determine or other.

Sixth, the obvious issue of interest was a type of social media studied by a researcher. We included here categories such as (1) in general, (2) fb-Facebook, (3) yt–YouTube. (4) IN–Instagram. (5) g–Google+. (6) wa–WhatsApp. (7) tw–Twitter. (8) li–Linkedin. (9) lg–Letsgo and allowed to expand this list furthermore.

Seventh, there was very interesting but not so often tackled issue of various regulatory approaches. The first category was most frequent (1) no regulatory issue, (2) protection of minors, (3) hate speech, (4) fair communication, (includes various misinformation), (5) marketing (includes political campaigns),(6) personal data protection, (7) copyright, (8) libel, (9) and others. In retrospective, we would suggest adding a category of "data policies". This issue came to policy-making attention during our search, as a response to closing access to data by social media platforms.

Eight, obviously we were interested in the research method used by researchers. Here we included (1) case study, (2) qualitative approach, (3) quantitative approach, (4) meta-analytical studies, (5) comparative studies, (6) not clear/combination/other cases. It was allowed to use multiple categories (e.g. Case study + qualitative approach). In retrospective, we have found our approach in this particular item as problematic. For future research, we would suggest using only two primary categories – qualitative and quantitative approaches (and their combination).

Initially, we focused on the type of convergence. We understood and identified the following possible types (and their combination) of convergence: (1) play/ labor, (2) private/public, (3) producer/ consumer (4) amateurish/professional, (5) legacy/new media. It turned out that there were present sometimes two or even three types of convergence.

During the research, we have found some unexpected results. These included examples of academic dishonesty, lack of professionalism or at least sometimes questionable research and publication practices. These probably represent only a top of an iceberg. For example, in one case, after pointing at questionable research on the interaction of social and legacy media published by Slovak author Ján Višňovský in allegedly peer-reviewed journal *Otázky žurnalistiky* (Issues of Journalism), the editor was not interested in publishing our contribution to the debate. In fact, there was silence for a long time, the contribution was mentioned as "not requested". Even the majority of members of the editorial board remained silent on the issue. The author of the problematic study himself never expressed his opinion on public criticism, although he was asked for feedback to criticism (see Školkay, 2017).

Similarly, a Slovak mathematician found that article published by Slovak author Andrej Trnka on *Big Data Analysis* in Romanian journal the European Journal of Science and Theology was 90% based on plagiarism (see Lehuta, 2018). Probably it was no coincidence that both controversial authors have been employed at the same faculty in Trnava, Slovakia. Moreover, 90% of Scopus-based public produced by that particular faculty was published in the same Romanian journal (Mikušovič, 2018). One can assume that it was not a coincidence that some members of this Slovak faculty have been members of an editorial board of this dubious Romanian journal. We have contacted Dr. Iulian Rusu, editor in chief of European Journal of Science and Theology. After an exchange of opinions, it became clear that the editor was more interested to know how the critic got access to that particular article, arguing that it was a crime (breach of copyright). Indeed, all articles published in this journal are behind the paywall, and not even abstracts are available freely. Furthermore, the editor presented a draft of an editorial to be published in December issue in which he praised his own achievements.

Apparently, no further steps were taken by the editor except putting the declaration of honor by the author at the beginning of that incriminating article in which the authors confirmed by the signature originality of his article.[34]

In other cases, researchers published multiple articles of 4-5 pages each, resulting from the same research. In some cases, the same research was published with slightly different modifications of the text. Obviously, the aim here was to document quantity of research output.

We think that this information is important to mention here since it questions the veracity of academic research produced in some of these countries, and published elsewhere, including allegedly high-quality Scopus database. We had to tackle these issues from the practical point too. Should such clearly questionable output be included in our sample? We have decided to exclude such output from our samples, or in case of doubt at least marked it as a very low quality or put it into the category of non-scientific research.

The research was performed by an international team, including Czech, Slovak, Polish and Hungarian speaking researchers.

Analytical Part

First, we were interested to know how many researchers tackled this topic and what is their gender composition. Surprisingly, as can be seen in Table 4, there are over a hundred researchers in each country who are interested in social media and various aspects of convergence. There were quite frequent jointly written articles. Therefore, the number of authors has the only loose connection to overall output, although statistically, it may appear that each author corresponds to a single article in the majority of cases. We had to exclude some Slovak authors who publish in *de facto* non-academic journals. Considering above mentioned caveats, our data show that there is some slight gender imbalance in the Czech Republic and Slovakia (ratio 2:1) where male seems to be more interested in the topic of (broadly understood) convergence of social media. In the Polish case, there is a slight dominance of females. However, this finding may just reflect the overall composition of researchers, more dominated by males/females respectively. The higher number of authors in the Slovak case can be explained by a very detailed research. In other words, it is unlikely that there are equal numbers of researchers tackling various aspects of convergence of social media in Poland and Slovakia. Nevertheless, the Slovak case can be seen as a sub-case which documents how broadly can be understood various aspects of convergence of social media. Furthermore, Slovak case but also other V-4 cases show that there is an abundance of local research on various particular aspects of convergence of social media, mostly published in local languages.

[34] E-mail communication with the editor in chief, August 28/29, 2018, eurjscitheol@yahoo.com

Table 4: Total Number of Authors and Gender Ballance of Authors

	CZ	HU	PL	SK
Male	77	57	63	98
Female	33	42	77	47
Total	100	99	140	145

As can be indicated in Table 5, it appears that a standard number of articles on social media and (broadly understood) convergence found in a five year period in a medium-sized country can reach over a hundred. The higher number of articles found in the Slovak case can be explained by a very detailed and broad search. For example, we have found many articles produced by researchers employed at faculties of management and marketing, but also by those employed at technical universities. Yet obviously these studies tackled mostly partial aspects of convergence, related to what Jenkins (2001) called Social or Organic Convergence and Economic Convergence. However, Jenkins did not explicitly mention various marketing and business strategies that are impacted by convergence, or that utilize social media in a converged business and customer environment.

Table 5: Total Number of Articles

	CZ	HU	PL	SK
Total	116	114	122	348

Now we turn to the issue of relevance or quality of academic output. Of course, relevance may not be fully identical with the quality, but in general, there should be a strong correlation. In any case, Table 6 suggests that the best quality of research on social media and convergence one can expect in the Czech Republic and Hungary, while both Poland and Slovakia show poorer results.

Table 6: Relevance of Academic Output on Social Media and Convergence

RELEVANCE	CZ	HU	PL	SK
1. high	35,6%	36%	7%	11,5%
2. medium	39,1%	40%	37%	41,4%
3. low	25,3%	24%	56%	47,1%
	100%	100%	100%	100%
100%=number of articles included in the sample	87	100	100	174

As can be seen in Table 7, in addition to finding a surprisingly high number of articles considered as being non-scientific in three V-4 countries, there seemed to be higher research attention paid by Polish authors to the practical usability of research. In the Czech Republic more basic researches have been conducted which can indicate that by providing fundamental, basic comments and thoughts, the researchers will probably turn to applied researches in the near future. In the meantime, all the other three countries have conducted applied researches thus both social media and convergence tend to be used from a practical point of understanding in the region.

Table 7: Typology of Research

TYPE OF RESEARCH	CZ	HU	PL	SK
1. basic research	56,3%	36%	20%	31%
2. applied research	28,7%	54%	74%	54,6%
3. non-scientific	8%	8%	1%	11%
4.border case (includes basic and applied)	7%	2%	5%	3,4%
	100%	100%	100%	100%
100%=number of articles included in the sample	87	100	100	174

It is interesting to check which social media are of research interest of researchers in V-4 countries. As documented in Table 8, about half of research on social media and convergence in V-4 countries tackled social media in general. However, there are significant differences between the Czech Republic on the one hand, with only some 15% of such articles, and on the other hand Poland, with some 80% of articles with a general focus on social media and convergence. A more detailed analysis suggests that the most frequently researched social media are Facebook, followed by Twitter, and on the third place one could identify all other social media mentioned in our table, with some national variations. We would like to come back to our data on social media usage mentioned earlier. Clearly, although YouTube is the second most popular social media type in all V-4 countries, almost equally popular as Facebook, it is under-researched in all V-4 countries. Similarly, in spite of their relatively high and increasing popularity, Facebook Messenger, WhatsApp, and Slovak Pokec social media are virtually ignored or almost ignored by local researchers on social media and convergence. Instagram in the context of convergence should be more researched too.

Table 8: Social Media Typology

SOCIAL MEDIA	CZ	HU	PL	SK	V4
In general	14,9%	58%	81%	49,4%	51,6%
100%=total number of articles	87	100	100	174	461

SOCIAL MEDIA	CZ	HU	PL	SK	V4
Facebook	60,2%	48,4%	62,1%	46%	51,7%
YouTube	5,6%	9,7%	6,9%	8,5%	7,7%
Instagram	2,8%	3,2%	6,9%	4,5%	4%
Google+	0,9%	3,2%	6,9%	6,3%	4,3%
WhatsApp	0%	0%	0%	0%	0%
Twitter	23,1%	11,3%	10,3%	15,3%	16,5%
LinkedIn	4,6%	0%	6,9%	6,8%	5,1%
Other	2,8%	12,9%	0%	12,5%	8,8%
Not available	0%	11,3%	0%	0%	1,9%
	100%	100%	100%	100%	100%
100%=number of all mentioned social media without a category: in general:	108	62	29	176	375

We also were interested to know which main purpose served social media in researched articles. In some articles, social media were seen as serving multiple purposes. Nevertheless, it was mostly a function of providing information, especially in the Polish sample, that dominates the sample. The second most often function was actually marketing (including political marketing). In the Polish case, marketing was as much important as educative function.

Table 9: Main Purpose of Social Media in Researched Topics

MAIN PURPOSE	CZ	HU	PL	SK	V4
1. information	33%	44%	58,7%	26,1%	38,2%
2. connections	9,7%	11,2%	5%	18,5%	12,4%
3. education	16,5%	5,6%	15,7%	12,2%	12,3%
4. hobby/entertainment	2,9%	8,8%	0,8%	3,2%	3,9%
5. marketing	26,2%	17,6%	15,7%	35,6%	25,7%
6. technology	5,8%	6,4%	1,7%	3,2%	4%
7. other	0%	0,8%	0,8%	0,5%	0,5%
8. no/difficult to determine/other	5,8%	5,6%	1,7%	0,9%	3%
	100%	100%	100%	100%	100%
100%=number of all identifiable main purposes	103	125	121	222	571

Nowadays, especially after Cambridge Analytica/Facebook scandal, it is important to tackle regulatory issues. Yet researchers in V-4 countries mostly ignored regulatory issues, as can be seen below. For example, highly relevant issue of data policies for social media platforms could not be identified within our sample. In fact, it was mostly lawyers who tackled regulatory issues, but there are very few lawyers who publish on social media and convergence or on social media in general. Be that as it may, a more refined analysis suggests that Hungarian researchers tackled the lowest number of regulatory issues, while Slovak researchers tackled the

highest number of regulatory issues (we remind that sometimes there were tackled multiple regulatory issues in an article). Nevertheless, one can assume that research interests reflect most pressing regulatory issues in each country. From this perspective, it seems that protection of minors in the converged environment is much more important for the Czech Republic than for other V-4 countries. Marketing seems to be irrelevant as a regulatory issue for Hungarian researchers. For Polish researchers, fair competition seems to be of concern. This included topics such as either placing some media contents on different electronic platforms or that co-creation of media contents by the users can be seen as a strategic challenge for media companies. Apparently and surprisingly, libel does not seem to be of concern for researchers in the Czech Republic and Poland. In general, marketing related issues (except Hungary) and personal data protection seem to dominate research in this area and in these countries.

Table 10: Regulatory Issues

REGULATORY ISSUES	CZ	HU	PL	SK	V4
1. none	67,8%	82%	65%	70,7%	71,4%
100%=number of articles	87	100	100	174	461

REGULATORY ISSUES	CZ	HU	PL	SK	V4
2. protection of minors	26,5%	0%	2,2%	7,6%	9,2%
3. hate speech	2,9%	5,6%	11,1%	9,1%	8%
4. fair competition	0%	5,6%	40%	7,6%	14,7%
5. marketing	32,4%	0%	28,9%	27,3%	25,8%
6. personal data	23,5%	38,9%	11,1%	15,2%	18,4%
7. copyright	8,8%	0%	2,2%	1,5%	3,1%
8. libel	0%	5,6%	0%	7,6%	3,7%
9. other	5,9%	44,4%	4,4%	24,2%	17,2%
Total	100%	100%	100%	100%	100%
100%=number of all mentioned regulatory issues without „none“	34	18	45	66	163

As mentioned, attempting to insert research methods into categories proved to be challenging. Therefore, the data presented in Table 11 should be seen as rather rough numbers. It is perhaps safe to argue that comparative research is not so much popular in these countries in this research area. Moreover, there appears to dominate qualitative research among Polish researchers. This finding seems to be consistent with the findings presented in Table 6.

Table 11: Research Methods

RESEARCH METHODS	CZ	HU	PL	SK
1. case study	24,4%	11,8%	6,6%	27,1%
2. qualitative	19,1%	15,7%	79,2%	26,6%
3. quantitative	33,6%	17,6%	6,6%	24,1%
4. meta-analysis	8,4%	19,6%	0%	4,4%
5. Comparative	0,8%	2,9%	0%	3%
6. not clear/combination/other	13,7%	32,4%	7,5%	14,8%
Total	100%	100%	100%	100%
100%=number of all identified research methods	131	102	106	203

Finally, we have attempted to analytically identify various types of convergence which were present in the researched output. Again, there were multiple choices allowed. These findings seem to be partly in line with previous data. For example, it is no surprise that the Polish authors focus so much on the issue of legacy and new media (as it was documented in Table 10 with focus at the fair competition). However, another interpretation is possible too, the data suggest that there is too much focus on the convergence of legacy and new media (except Slovakia, and less so for Hungary) at cost of other types of convergence.

Table 12: Type of Convergence

CONVERGENCE	CZ	HU	PL	SK
1.play/labour	16%	4,6%	5,5%	10,4%
2.private/public	28,7%	13,8%	8,6%	26,7%
3.producer/ consumer	8,5%	13,8%	9,4%	34,8%
4.amateurish/professional	1,1%	16,5%	12,5%	9,5%
5.legacy/new media	45,7%	37,6%	64,1%	18,6%
NA		13,8%		
Total	100%	100%	100%	100%
100%=number of all identified types of convergence	94	109	128	221

Conclusion

It appears rather problematic to carry out case study or comparative study on social media and convergence. First, there is rather a loose definition of convergence. Second, many studies and articles are either available in local languages and/or not freely accessible. Nevertheless, in this research, there seems to be clearly visible country-specific thematic and methodological focus within research on social media and convergence. Comparatively, best research on above-mentioned factors is most likely to be found in the Czech Republic and

Hungary. Published data on social media and convergence belong to many authors in each country, but only a few authors seem to be actually specialized in this topic. This comparative study shows that there are country-specific differences in the study of the convergence of social media. Before summarising them, we have to mention that the most important finding is that this novel area of research is lagging behind rather rapid technological and political-regulatory developments targeting social media. In particular, this is related to lack of attention paid by local lawyers to some of the most pressing issues facing these societies as a result of the convergence of social media. These include, for instance, data policies for social media platforms following Cambridge Analytica/Facebook scandal of spring 2018. One could assume and study this issue, including providing some policy-regulatory recommendations, before its public/media revelations were made. Similarly, it was impossible to find any relevant article on the current debate about the revision of Audiovisual Media Services Directive with focus on regulation of social media. At last but not the least, there is ongoing policy detabe on this novel topic.

Moreover, some of the most popular (e.g. YouTube, WhatsApp) and rapidly gaining popularity (e.g. Facebook Messenger) social media seem to be under-researched too. Thus a new research area within this relatively young topic can focus for example on Instagram and YouTube. Not just because of their high popularity but also because of their main users: the young adults.

Although most of the analyzed studies used qualitative and/or quantitative approach we still see a huge lack of comparative studies concerning social media and convergence. Although our dataset does not cover the total number of publications in all four countries, this absence of comparative studies is still striking. Some interpretations of social media roles in V-4 countries found in comparative reports such as RDNR2018 seem to be too subjective.

The structured overview of actual findings and recommendations from selected high and partly medium quality reports reviewed is published in a separate report. There also is freely available almost complete mailing list of researchers in these countries which may facilitate both comparative research (which seems to be downplayed among V-4 countries too) as well access to researchers and to their research output.

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