PERFORM
Performing and Responsive Social Sciences

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Swiss Agency for Development and Cooperation SDC

UNI FR
UNIVERSITÉ DE FRIBOURG
UNIVERSITÄT FREIBURG

HELVETAS Swiss Intercooperation SRB

Understanding Current Practices of Science Communication in Serbia and Albania:

Recommendations for Enhancing Effectiveness

Research Report

Authors

Florian Bieber (Introduction & Conclusion)

Blerjana Bino (Albania)

Marko Kmezić (Introduction & Conclusion)

Irena Myzeqari (Albania)

Aleksandar Pavlović (Serbia)

Tara Tepavac (Serbia)

Disclaimer

This research report is commissioned by PERFORM, project of Swiss Agency for Development and Cooperation (SDC), implemented by HELVETAS Swiss Intercooperation and University of Fribourg.

The information and views set out in this report are those of the authors and do not necessarily reflect the official opinion of PERFORM.

Table of Contents

Abbreviations

AEIOU - Awareness, Enjoyment, Interest, Opinion-forming, and Understanding

AMA – Audio-visual Media Authority

APC – Article Processing Charges

GoA – Government of Albania

JIF – Journal Impact Factor

EC – European Commission

EU – European Union

ICTs – Information and Communication Technologies

IMF – International Monetary Fund

IPA – Instruments of Pre-Accession

MESY - Ministry of Education, Sports and Youth

NASRI – National Agency for Science, Research and Innovation

NSSTI - National Strategy for Science, Technology and Innovation- 2017-2022

NGOs – Non-Governmental Organizations

OECD - Organisation for Economic Co-operation and Development

OS – Open Science

OSF – Open Science Framework

RRPP – Regional Research Promotion Programme

PUS – Public Understanding of Science

QAA - Quality Assurance Agency in Britain

SEE – Southeastern Europe

SSR – Social Science Research

US – United States of America

WB – World Bank

WBs – Western Balkans

List of Tables

List of Figures

1 Introduction

In an interconnected knowledge and innovation driven society, science communication is deemed to be more important than ever. Facilitated by the proliferation of information and communication technologies and enabled by principles of democratization of science, science communication benefits the scientific communities and systems, individual researchers, decision-makers, private sector, civil society and the society at large. The survey of literature demonstrates that ample research is carried out on science communication practices across various disciplines and mainly concentrated on US/EU (Schäfer, 2011). However, there is very limited research, almost inexistent, on practices of science communication in the Western Balkans. Considering the paramount importance of science communication and at the same time the lack of research on this area, PERFORM has commissioned the authors to carry out a research project in order to gain a better understanding of the current performance of science communication in Serbia and Albania, and how science communication can be strengthened.

The aim of this research project is to explore the underlying factors of the current situation of science communication in Serbia and Albania and to identify potential drives that could improve its effectiveness in the future. The thematic focus of the research is political and economic sciences. The research zooms into the following dimensions of science communication: (i) Peer to peer: communication within science community; (ii) Communication between science and policy development: Scientists addressing policy institutions; (iii) Communication of science to society: Scientists addressing media and the public at large. More concretely, the research objectives are:

- To investigate the current practices of science communication with a focus on political sciences and economic sciences;
- To analyse the impact of regulatory framework, cultural values and norms on current situation and practices of science communication in political and economic sciences;
- To explore the dynamics of science communication impact on individual scientist, academic and research institutions and the wider environment in which they operate;
- To explore the underlying factors of the current situation of science communication;
- To identify potential drivers for future improved practices of science communication and enhanced effectiveness;
- To provide a comparative framework analysis of science communication in Albania vis a vis Western countries.

In order to achieve the above-mentioned objectives, the research project applies a qualitative research design approach with a strong analytical and explanatory framework as will be outlined below.

1.1 Research Methodology

The qualitative research design has been favored for it allows for in-depth and thorough explorations of the research topic through a systematic application of qualitative methodology. The interpretation of the research findings based on data collection and analysis will not only fill in the gap regarding

the current situation of science communication in Albania, but will also provide insights for drawing recommendations on enhancing its effectiveness. Therefore, the key feature of the research is its uniqueness and in-depth exploration of the particular selected case study, which is contrary to the quantitative approach that seeks to generalize the findings and confirm cause and effect relations.

As a qualitative research design, its main characteristics are: the design is based on critical social constructivism; the research problem becomes the research aim and then the research question; the size of the sample is not important and therefore it is small because the main focus is the in-depth analysis of the case study through various methods; the methods are document analysis, in-depth interviews, informative interviews as well as analytical review of secondary resources; finally the interpretation of data is based on the combination between researchers' perspective and data collected within the conceptual framework. Transcribing, coding and themes are crucial for this qualitative research design.

The qualitative research process included three main phases: first, the desk research; second, fieldwork and data gathering; and third, data analysis and interpretation. In the first phase of the research project the research design and methodology is finalised by drawing also on the insights from literature review, i.e. the survey of scholarship and other resources on science communication. This phase serves to set the research background and also provide a critical analysis of the positioning of science communication in Serbia and Albania vis-a-vis the broader science and research landscape in the country.

The second phase is that of fieldwork that is carried out through primary data collection – use of informative interviews with key stakeholders, in-depth interviews and document analysis – as well as exploration of secondary resources and reports on science communication. The final phase is that of data analysis and interpretation as well as write up of the final research report and recommendations as per specific targeted audiences.

Based on the research aim and objectives as well as on the qualitative research design approach, the research methods applied are:

- Informative interviews with key stakeholders in academia, policymaking, private sector, civil society and media.
- In-depth interviews with researchers in political and economic sciences;
- Document analysis of resources, reports, practices in place in higher education and research institutions regarding science communication etc.

1.2 Outline of the Research Report

Apart from the introductory chapter, the research report is organised as follows: the second chapter elaborates on the latest trends in scientific communications. It is divided as per the key dimensions of science communication, which constitute also the main pillars of the research. The third chapter sets the research aim into context by empirically exploring the science system in Albania and Serbia. It presents the research findings and incorporated analysis of scientific communication in two case

study countries. The chapter is organised as per the three pillars of science communication. The final chapter presents the recommendations drawn from the research project.

1.3 In Search of a Definition

From open talks of the ancient "Agora", to the public space of Habermas, from one (Guten)Berg to the other (Zucker)Berg, it seems that communication has had an omnipotent power in changing and reshaping societies. No matter the type of information or data produced it was soon understood that if people would not communicate and share results among them, politics, economics, culture, religion and science would not hold neither the importance not the identity that they have today.

From all the categories mentioned above, science, especially natural ones, appear to be the last in need of communication, given that its results and feasibility are far more concrete and easily to be perceived and/or experienced. This would still be true in the late 1950's, when C.P. Snow held his famous speech on the unbridgeable gab between the more mathematical sciences and humanities (Fecher & Friesike, 2014). Science had no chance to remain indifferent to the growing interconnectivity of the world and that is why the two hostile branches of knowledge had to come closer and closer, giving rise to more interdisciplinary scientific paradigms that had to be properly communicated to the world out there and its numerous audiences (Dietram A. Scheufele, 2007).

In a traditional perspective science has to be communicated because "it [could provide] the public with information essential to forming opinions about public policy and about the costs and benefits of governmental expenditures on science (Treise & Weigold, 2002, p. 311). Led by the idea that the majority of people lack interest on science, the deficit model, which has been predominant for many years, saw science communication "as a one way communication from experts with knowledge to publics without it" (Bucchi & Trench, 2014). Based on this model of "Public Understanding of Science", from now on PUS, "science that transmitted by experts to audiences is perceived to be deficient in awareness and understanding" (ibid.119). In other words, audiences are hostile, ignorant and easily persuaded. Despite "the long-standing concern by science communicators about the prevalence of the "*deficit model*" thinking" (Besley & Tanner, 2011, p. 241) things seem to be moving in a more positive direction. (van Dijck, 2003) argues that "despite its powerful echoes, PUS has recently been complemented by postmodern approaches, resulting in what [he calls] a "(multi)cultural" practice of science communication (p. 178) and that the "increasing public knowledge about science, will lead to greater enthusiasm for science and technology" (Besley & Tanner, 2011, p. 241). Furthermore, Van Dijik says "he prefers more the term science communication over public understanding of science, because the latter still assumes an implicit hierarchy between the experts and the ignorant (van Dijik, 2003, p. 186).

Other scholars have been working in proposing a more contemporary definition of science communication, trying to find if there exists any difference among the key theoretical concepts of this paradigm such as public awareness, public understanding of science, scientific culture and scientific literacy. They define science communication as "the use of appropriate skills, media, activities, and dialogue to produce one or more of the following personal responses to science: Awareness, Enjoyment, Interest, Opinion-forming, and Understanding" (Burns, O'Connor, &

Stocklmayer, 2003, p. 183). “Science communication aims to enhance public scientific awareness, understanding, literacy, and culture by building AEIOU responses in its participants” (Burns et al., 2003, p. 198) [by empowering] the public to attain . . . “an interest in science, a confidence to talk about it, and a willingness to engage with science wherever and whenever it crosses their paths” (Osborne, 1999: p. 52).

The vowel analogy AEIOU is a very empowering concept in the sense that it opens the path for a more constructive model of how science is communicated, leaving more space for dialogue and participation. It focuses more on the variety and inter-dependent publics who receive the scientific information and construct meaning based on their cultural practices. For (van Dijck, 2003, p. 186) “science communication implies reciprocity among all agents involved a feature basic to a cultural practice”. The AEIOU acronym lets us know that the public is the ultimate goal of science communication, whose construction and message should be created grounded on the awareness, enjoyment, interest, opinion and understanding of it.

1.4 The Latest Trends in Science Communication

In today’s hyper-connected world, scientists have the opportunity to communicate just about anything and everything in great variety of academic and non-academic outlets. At the same time, they have to compete with others, journalists, lobbyists and anybody with a passing interest in a subject area. Research funding and institutions are also increasingly emphasizing the importance of communicating research to a general public, often described as "impact".

Given the potential impact of these outputs on their academic careers on one hand, and on the general public and policy-making process on the other, this Chapter attempts to understand the role that the research outputs play and how to analyze the latest trends in social science communication based on three mutually interconnected strands: science to academia, science to public, and science to policy stakeholders’ communication. Our goal is to elaborate on the latest trends in scientific communication in social sciences and economics at the European level. More broadly, we want to illustrate ways in which researchers can best share their ideas and make tangible impact on contemporary social and economic processes.

1.4.1 Science to Academia

A scientific career is founded largely on written and oral communication of conducted research. The end goal of different aspects of scientific communication among peers is to expose and influence the scientific community with your ideas and vision. To achieve this a scientist needs to communicate not only their final product, but also their accomplishments, goals, and ideas to their organization, colleagues, and networks.

1.4.1.1 Academic Traps

The infamous academic 'publish or perish' principle is at times taken quite literally, as in a number of countries the criteria for professional advancement is tightly connected with annual--often excessive--quantification of published academic texts.

This brings with the risk of "thin-slicing" research findings. Thus, one research project is published in multiple articles, "sliced as thinly as possible" to lead to multiple publication, which satisfies criteria of quantity, not of quality.

Beyond the risk of lower quality of undertaken research and/or publication, it also creates a fertile ground for the rise of predatory academic sources i.e. journals that charge money for publishing without any quality control, or those that are hijacking legitimate scholarly journals that are indexed by Thomson Reuters and have their impact factors compiled by the journal citation report in order to illegally solicit manuscript submissions for the hijacked version of the journal for a fee, or simply have dubious submission standards.[1]

Good source of such quasi-academic sources, but of credible journals as well, is Scholarly Open Access.[2] Publishing in these outlets might bring some extra points for the purpose of internal evaluation, and allow scholars to advance their careers, but it will certainly not bring any international recognition or academic prestige. To avoid this, when publishing an academic research, one must take into consideration whether the source is bibliographically isolated, i.e. whether it is being cited by other quality sources.

1.4.1.2 How to Boost Visibility Among Peers?

There are two principle ways to boost visibility for academic writing. The first is to publish with a well-reputed academic publishing house (i.e. Oxford University Press, Cambridge University Press, Routledge, Palgrave, Sage, etc.), or with journals listed in the prestigious Social Science Citation Index (SSCI) ranking list. However, this alone is usually not sufficient as mentioned publications are sold at a very high price, and are usually bought by academic libraries rather than preferred target audience. In particular, smaller and less prosperous institutions are not able to access publications. This has given rise to a whole new trend of illegal sharing books (through sites such as lib.gen) and commercial sites that monetize individual research (such as academia.edu and researchgate) and thus contribute further to the challenge that research is utilized for making money without compensation to the researchers.[3]

Moreover, by relying on scientific communication solely on prudently chosen academic outlets, one risks of drowning their research in oversaturated field of social sciences and economic publications. In a nutshell, even the best texts do not always find way to the targeted audience unless additional dissemination efforts are vested.

---

[1] Beall, Jeffrey. 2012. Predatory publishers are corrupting open access (Nature: London): 179.
[2] See more at http://scholarlyoa.net.
[3] Bond, Sarah, Dear Scholars, Delete Your Account At Academia.Edu, Forbes, 23.1.2017. https://www.forbes.com/sites/drsarahbond/2017/01/23/dear-scholars-delete-your-account-at-academia-edu/#1e18d1ae2d62.

1.4.1.3 Open Access Publications

In this regard, the second principle, of publishing in an open-access format has recently gained prominence from beyond its circle of pioneers and experts. Open-access literature is digital, online, free to readers, and free of most copyright and licensing restrictions. It uses the Internet as the medium, and depends exclusively upon consent given by the author or copyright-holder.

The EU is currently considering potential impact of a transition towards Open Science research ecosystem so to enhance the efficiency and quality of research by reducing the costs of data collection, by facilitating the exploitation of published research at low cost and by increasing the opportunities for future collaboration as well as in innovation. In this regard it already requires open access for published articles and data, provides funding for open access, and stimulates the nascent European digital science industry.[4] In addition, numerous European funding agencies already require research funded to be open access.

There are two main ways of getting manuscript published in an open access, namely: 1) publishing in an open access book / journal, or 2) depositing a previously published article in an open access repository.

1) Publishing in an open access

Open access delivered by journals is also known as 'gold' open access and open access delivered by repositories is often referred to as 'green' open access. While the most open access in medicine and natural sciences is already gold, this is still not the case in social sciences and humanities.

The most common problem with gold access is the high cost for the author - the article-processing fee, charged by the publishers. This amount varies from couple of hundred of Euros for golden access for a journal article up to whooping 15000 Euros for a book.[5] However, according to the comprehensive Study of Open Access Publishing (SOAP),[6] when researchers publish in fee-based open access journals, the fees are most commonly paid by external funders (59%) or by their respective universities (24%). The study implies that only 12% of researchers actually pay from their own pocket. However, the high costs raise questions on whether the funded public access creates new hierarchies in academia (between those who have access to funds and those who do not) and also increases the transfer exorbitant fees from public sources to private for-profit companies that own most journals.
Although the best known business model for open access journals, according to the Directory of Open Access Journals (DOAJ),[7] the most peer-reviewed open access journals do not charge fees at all. The question here arises, what is the quality of such free of charge open access journals. Naturally, they differ and while some of them are inherently low in quality, the Thomson Scientific found back

[4] Thomas Crouzier. 2015. Science Ecosystem 2.0: how will change occur? (European Commission: Directorate-General for Research and Innovation).
[5] Nassi-Callo. L. 2013. How much does it cost to publish in Open Access? [online]. SciELO in Perspective [viewed 30 June 2017]. Available at: http://blog.scielo.org/en/2013/09/18/how-much-does-it-cost-to-publish-in-open-access/.
[6] Suenje Dallmeier-Tiessen, et al. 2011. Highlights from the SOAP project survey. What Scientists Think about Open Access Publishing. Available at: https://arxiv.org/archive/cs.
[7] See more at https://doaj.org.

in 2004 that in every field of the sciences "there was at least one open access title that ranked at or near the top of its field"[8] in citation impact. It can be concluded therefore that the quality of open access journals is not predetermined by its business model or publishing house reputation. It actually varies with regard to the function of its editors, peer reviewers, and authors.

2) Open Access Repository

Alternatively, the Registry of Open Access Repositories (ROAR)[9] now lists more than 250 subject-based open access repositories and more than 2,300 institutional open access repositories. An open access repository is a digital platform that holds research output and provides free, instant and permanent access to research results to anyone to use, download and distribute. Although repositories are comparatively new in the scholarly landscape, some of them, such as the Social Science Research Network (SSRN)[10] are already making an impact. In addition, almost every funding agency, including the EU institutions, require a green policy, that is, requiring deposit in an open access repository rather than submission to open access journals. Following up on the 2002 Budapest Open Access Initiative[11] recommendation of self-archiving whereby scholars would deposit their refereed journal articles in open electronic archives, repositories are turning into a valuable databank where authors are practicing lawful distribution of articles published in peer-reviewed journals.

1.4.1.4 Social Media

Social media have also become an important tool of sharing publications. Often *Twitter* and *Facebook* are more important referrers than conventional sources for articles. Savvy social media strategies, can greatly increase article downloads.[12]

Bearing in mind the lightning speed pace at which social media evolve, as well as the continual movement of audiences from one social media network to the next, it seems as the strategic use of social media for a researcher can seem like a moving target. The end goal of social media strategy should result in a growth of social media follower numbers and increased engagement with published content. Social media channels are primarily about social connections, and it is therefore important to follow accounts that represent various target audiences. Ideally, these accounts will also be influencers among targeted audiences that can assist in spreading information. For example, one of the Balkans in Europe Policy Advisory Group's key audiences on Twitter are policymakers interested in EU – Western Balkans relations. One key way to attract the attention of this target audience is to follow these policymakers, but also EU institutions and EU officials who might share some of the posts with many other policymakers in the field. Two useful tips in searching for target audience include following particular social media users based on keywords and content, and searching for hashtags your target audiences might be using (for example #WB6 on Twitter).

[8] Marie E. McVeigh. 2004. Open Access Journals in the ISI Citation Databases: Analysis of Impact Factors and Citation Patterns A citation study from Thomson Scientific. Thomson Corporation. Available at: http://ip-science.thomsonreuters.com/m/pdfs/openaccesscitations2.pdf.

[9] See more at http://roar.eprints.org.

[10] See more at https://www.ssrn.com/en/.

[11] See http://www.budapestopenaccessinitiative.org/read.

[12] Commercial publishers often offer temporary promotional open access to articles that receive strong social media interest. This again can drive up downloads of articles.

Secondly, it is important to provide exciting and original content. This can be done by including science blogs, Twitter feed or event photos in social media posts. Finally, social media require a two-way interaction with followers, which includes among other responding to comments and mentions on your social media feeds, following on relevant hashtag conversations, commenting content posted by members of your target audience, etc.

1.4.1.5 Informal Approach

Finally, researchers must not rely merely on written communication in order to transfer their results in an exact manner. Often the most informal modes of communication can turn to be the most productive ones. Traveling to scientific conferences or going from one research project to another, scientists are expending their personal networks. These activities being important forums for scientific communication *per se*, can easily be improved with minimal investment into regular maintenance of professional contact with peers. There are number of ways of strategic communication with colleagues, including among other periodic group e-mails highlighting most recent activities, scientific "speed dating" at conferences, sharing reprints of previously published papers, including hyperlinks to most recent publications in an electronic signature, or following up on suggestions raised in meetings and conferences with an e-mail to clarify and reinforce own ideas.

1.4.2 Science to Public

The overall presentation of research facts and figures to the general public has in a relatively short time gone from being regarded as neither advisable nor appropriate to an increasingly recognized "responsibility of scientists."[13] Media, social or otherwise, have simply become part of job requirements especially for early-stage scientists.

1.4.2.1 Expectations Towards Scientists

Today, most will agree that it is important for scientists to be able to communicate to wider public.[14] Still, the obstructing factors remain the same as in the previous decades. First, scientists lack formal training in science communication, and second, their expertise makes it challenging to communicate key findings to a widely non-specialist public. These problems are already gaining prominence in the United States, where a number of organizations are offering programs aiming to equip graduate and postgraduate students with fundamental skills needed to efficiently communicate their research to the public.[15]

Formal training programs on the other side of the Atlantic are still in infancy as only a handful of institutions are offering courses on communicating science.[16] Hence, European scientists are largely

[13] Leshner AI. 2003. Public engagement with science. Science. 299 (5609):977.
[14] Nancy Baron. 2010. Escape from the Ivory Tower: A Guide to Making Your Science Matter (Island Press: Washington DC).
[15] See for example The American Association for the Advancement of Science ((http://communicatingscience.aaas.org), or the New York Academy of Science's Science and the City program (http://www.nyas.org/WhatWeDo/SciencetheCity.aspx).
[16] For example the Imperial College London offers MA course in professional science communication. See http://www.imperial.ac.uk/science-communication-unit/msc-programme/msc-science-communication/.

required to gain experience through practice. Establishing an academic profile, especially as a young scholar, is indeed difficult relying exclusively on traditional academic sources, i.e. journals, academic volumes, or scientific conferences. In this perspective it is highly advisable to reach out to the far-fetched potential of traditional and social media.[17]

1.4.2.2 Social Media

Social media is a dynamic marketplace of ideas. If used properly it becomes an effective scientific interactive business card.[18] The power of social media can best be understood via its reach-out potential. For example, the University of Belgrade has 1755 Twitter followers, while the University of Tirana does not even host its own Twitter account. On the other hand, there are researchers affiliated with the Balkan area studies whose professionalized and specialized Twitter accounts have more than 15000 followers. By creating their own knowledge-driven social media networks, these scientists have not only created opportunity for themselves to share their ideas and products with the wider public, but also earned themselves an expert name-recognition and became a source of information for others.[19] At this stage it becomes frequent that they are asked by mainstream news outlets to write an op-ed, or to appear on radio and TV talk shows, thus optimizing their scientific communication to the wider public.[20]

Another important format has been the blog. Around for over a decade, it has been a source for experimenting, formulating and promoting research. Scholars have been systematically using blogs to communicate to a wider audience. In addition, organized blogs have become important hubs of science communication. The most prominent social science examples are "Monkey Cage" that began as an independent blog of American political scientists, but has since been acquired by Washington Post,[21] and "Duck of Minerva"[22]. Institutionally, LSE has established the most important interlinked blog-sphere with several dozen thematic intertwined blogs in which also scholars from outside LSE participate. Some speak specially to an academic audience, others to a wider audience.[23]

1.4.2.3 Reproducibility and Transparency

The latest trend in scientific communication to public includes “reproducibility and transparency,”[24] that is making research records completely sharable. Emerging innovative formats and techniques in science communication allow researchers to bring their study much closer to the general public. Some of the commendable examples include live communication with the audience taking form in a

---

[17] Wilcox C. 2012. Guest editorial: It’s time to evolve: Taking responsibility for science communication in a digital age. Biol Bull 222: 85–87.

[18] Holly M. Bik and Miriam C. Goldstein. 2013. "An Introduction to Social Media for Scientists," PLOS Biology 11, no. 4: e1001535. doi:10.1371/journal.pbio.1001535.

[19] See Jasmin Mujanovic. 2014. Asymmetric Warfare: Social Media for Academics. Available at: http://www.jasminmujanovic.com/blog/asymmetric-warfare-social-media-for-academics.

[20] Cornelia Dean. 2012. Am I Making Myself Clear?: A Scientist's Guide to Talking to the Public (Harvard University Press: Harvard).

[21] https://www.washingtonpost.com/news/monkey-cage/?utm_term=.00b478088bd7.

[22] http://duckofminerva.com/about.

[23] http://blogs.lse.ac.uk/. On the topic of this study, this blog is particularly relevant: http://blogs.lse.ac.uk/impactofsocialsciences/.

[24] Megan Williams.2015. Science Communication Trends we Love. Nexttrends. Available at: https://nextrends.swissnexsanfrancisco.org/sciencecommunicationstrends/.

more relaxed and informal setting such as the brown bag lunch, research fair, or science café. Storytelling via online media, such as the Radio Lab or Ted Talks series, where presenters have an opportunity to be more informal and sometimes even humorous, is another good example of scientific communication. Finally, researchers together with science journalists are embracing novel computer techniques, such as infographics and insightful visualizations that help tell science stories in compelling and interactive ways.[25] A good example of the latest is the collaboration project between the researchers working at the Balkans in Europe Policy Advisory Group (BiEPAG) and journalists at the European Western Balkans web portal.[26]

1.4.2.4 Targeting Audience

When communicating with a science audience - peers in the field, chances are that scientists would have a good sense of who they are. If they do not know each other already, they surely know each other habits, they are familiar with journals that others read, and quite possibly what sites they visit to find relevant information. But the picture is much different when talking about targeting 'wider audience' or 'broader public'.

It is first of all important to know who makes the target audience. Is it educated audience, young or old, is it policy-oriented, is it environmental friendly, etc. More precisely the audience is defined, it becomes easier to communicate to them. However, there are instances when tracing the habits, needs and patterns of behavior of target groups is beyond the knowledge of a researcher simply due to the fact that they belong to different social groups, or geographic area. In this regard several techniques including informal interviews with target group representatives, surveys or a focus groups can help with identifying and defining target audience.

1.4.3 Science to Policy

Evidence-informed policy-making is not a goal in itself, but an important part of ensuring that relevant stakeholders would process decisions that can create a positive impact on people's lives. European Union has made significant efforts to develop the science-policy interface and to improve communication between scientists and the European citizens.[27] Integration of science communication content policy is already an important element of almost every EU funded research activity to which scientists are getting increasingly habituated.

On this topic, scientists (should) communicate their research with governments, legislators, civil society, donor community and intermediary organizations in order to feed into the research-policy nexus.

---

[25] J. E. Thomas et al. 2006. Communicating Science Effectively: A Practical Handbook for Integrating Visuals (IWA Publishing), 7.

[26] See https://europeanwesternbalkans.com.

[27] Communication from the Commission to the Council, the European Parliament, the Economic and Social Committee and the Committee of the Regions. 2001. Science and Society Action plan (COM/2001/0714 final). Available at: http://eur-lex.europa.eu/legal-.content/EN/TXT/HTML/?uri=CELEX:52001DC0714&from=EN.

Naturally, this path is not a straightforward one as there are instances where the domains of applied social research and of policy and politics are geared towards common objectives, but opposing rationales can also prevail. As Doornbos rightly puts it, the interrelations between research and policy are "highly varied, ranging from instances where the respective fields are complementary […], to yet another contexts marked by profound suspicions, hostility and conflict between vastly different worlds and outlooks."[28] This is a significant observation, because it suggests that above everything else, not neglecting the expertise of the researches involved, or the relevance of their studies; the success of the science to policy communication is predetermined by demand for research by decision makers and effective systems to facilitate it.

Hence the main task of researchers with regard to policy communication is twofold, namely to articulate their empirical exploration into applied policy research, and to find effective knowledge intermediaries to communicate research[29] findings to relevant stakeholders. Succinct, effective science to policy communication is conditioned by vision and preparedness from both the top down and the bottom up.

Scientists share their knowledge with policy makers through meetings, testimonies, policy briefs, policy studies, blogs, media and open presentations. In this regard it is important to know which route of communication is best suited to a particular issue, who to speak to and when, what to do to prepare, and how to follow up. The most important is to offer actionable solutions to the problem. The more immediate the solution, the bigger are chances that the stakeholder will pick up the interest to deal with it.

Again, science communication to a policy community is important. Academic articles and books are rarely ever read not to mention understood by policy makers. Thus, translating research findings into policy relevant and accessible formats is essential. However, this should not be understood as merely writing short "papers" or "brief". Without dialogue and engagement, they are likely to be ignored.

1.4.4 Global Trends in Scientific Communication

Effective science communication to the academic community, the larger public and to policy makers has become an important aspect of research. While research institutions across the world demand greater output and impact, the support for achieving this goal is often left to individual researchers with little guidance, training and support. Media department sometimes provide guidance, and some provide training in various aspects, but an integrate science communication strategy remains the exception. While this Chapter discussed three aspects of science communication separately, they are deeply intertwined and rest on the need to communicate research. As all good communication, it considers a variety, integrated tools and puts the audience at the center. This does not mean that science communication should short-change research for communication, but good research which never reaches anybody is not relevant. If we consider that a large share of academic articles in social

[28] Doornbos, Martin. 2015. Social Research and Policy in the Development Arena Critical Encounters. (Palgrave: London): 19.
[29] See for Example of good practice the Evidence and Policy Group of the DFID-ESRC Growth Research Programme (http://theimpactinitiative.net/impact-lab/collection/supporting-impact).

sciences is never cited and often only downloaded just a few dozen times (and read even less), reaching a broader audience needs to be considered.

Science communication is likely evolving into an interlinked system. Academic institutions that are able to support their researchers in these tools and the underlying concepts are likely to have a strategic advantage (including in global rankings, public awareness). To date, the initiative often limited to individual researchers, often with younger academic being more media and communication savvy. This is likely to result in tensions (including generational) within institutions and there often still a negative connotation associated with what some see aggressive self-promotion. Here, innovative institutional strategies can help promote a new approach.

2 Study Albania

2.1 Peer to Peer Science Communication in Albania

2.1.1 Science System in Albania: Reforms and Policy

Albania started reforming the higher education system by joining the Bologna Process in 2003 and working to achieve its alignment with the European standards. Moreover, a distinct policy action was the liberalisation of the higher education market initiated in 2007 with the licensing of the first private HEI. In 2009-2010, an extensive number of private HEIs were established and subsequently accredited (2010-2013). The liberalisation of HE proved to be a profound transformative process that had both positive and negative consequences. On one hand, the increase in the quantity of HEIs, study programmes, the pool of academics and researchers as well as students meant more opportunities and a diversity of options to choose from. On the other hand, quality of higher education and scientific research performance remained challenging. Following this chaotic situation, a reform in higher education and scientific research was carried out in 2014-2015. First, in 2014, 18 private HEIs were closed and 13 suspended. Three branches of public HEIs and 1 public HEI were closed as well. Second, this reform culminated with the adoption of the new Law on Higher Education No.80/2015. Third, a national strategy on scientific research, innovation and technology has been drafted in 2016, passed consultation process and awaits approval in 2017.

The reform process in higher education and scientific research in Albania initiated in 2014 was based on a rigorous analysis of the current situation of the country, as well as the main international developments and requirements in the field. The main drivers of the reform comprised: the improvement of teaching and learning quality; the enhancement and improvement of scientific research; the diversification of education offers in line with the country priorities and labour market needs; the fostering of the competition within Albanian HEIs and the improvement of HEIs' governance mechanisms through granting necessary autonomy, conditioned only by their performance and accountability. In other words, these drivers represent the challenges faced by the higher education and scientific research system in Albania and their future priorities.

Other initiatives towards improvement of the higher education and scientific research landscape in Albania include: first, in March 2015, Albanian Accreditation Agency for Higher Education in cooperation with Accreditation Council started a horizontal individual and comparative assessment process for all third cycle (PhD) study programmes offered by public and private HEIs in the country. Second, MESY signed a cooperation agreement in December 2014 with the British Agency for Quality Assurance (QAA) to support the institutional assessment of public and private HEIs in Albania. The assessment has been carried out in all HEIs and recommendations have been provided for all HEIs on how to achieve quality in both study programmes and scientific research. Not all HEIs have been satisfied with the results of the assessment, particularly public HEIs that went through this assessment and accreditation process for the first time.

Currently, the main legal framework that regulates higher education and scientific research in Albania is Law No. 80/2015, date 22.7.2015 "On Higher Education and Scientific Research in Higher Education Institutions in the Republic of Albania". This forms also the main legal framework for science and research while the national strategy on scientific research, innovation and technology is not yet approved. In terms of policy, the Government and Parliamentary bodies determine the science, research and higher education policy in Albania. They are responsible for drafting and approving strategies, laws, bylaws and other regulations and for carrying out the other activities in the field of science, research and higher education provided for by law and in relation to relevant line governmental bodies. Article 57 of Albanian Constitution guarantees in principle the autonomy of higher education institutions (HEIs).

The main authorities responsible for higher education and scientific research policies in Albania as defined by the Law No. 80/2015 are: (i) Ministry of Education, Sports and Youth (MESY) is the institution that implements the government policy in the field of higher education and scientific research, mainly through policy development and adoption of strategic plans as well as drafting and proposing legal frameworks. In addition, MESY is responsible for managing the State register of scientific degrees and academic credentials.[30]

Other responsible institutions are: (ii) the Council of Higher Education and Science, an advisory body for the MESY responsible for implementation of policies as well as quality development and promotion in higher education and scientific research; (iii) the Conference of Rectors, responsible for coordination, drafting of common policies, achievement of shared interests and carrying out the tasks provided for by law in higher education and scientific research for the public HEIs; (iv) Educational Services Centre, a public institution with the mission to provide services in the field of higher education to citizens and HEIs, as well as to ensure public access to higher education data; (v) the National Agency for Higher Education Financing, a public institution under the authority of MESY responsible for allocating public funds to support the activities of public higher education institutions, including providing grants for scientific research; (vi) the Agency for Quality Assurance in Higher Education, a public legal body responsible for quality assurance in higher education. It monitors and evaluates the quality of institutions and offered programmes, through quality assurance mechanisms, accreditation and other processes; (vii) Accreditation Board, a collective decision-making body established in Agency for Quality Assurance that takes the final decision on accreditation of higher education institutions and their study programmes; (viii) National Agency of Scientific Research and Innovation (NASRI), a public institution under the authority of MESY, the main responsibility of which is allocation of project-based funding for scientific research and scientific research performance evaluation.[31]

The National Agency of Scientific Research and Innovation is of particular relevance to science communication. HEIs and / or researchers / research groups submit research projects to NASRI. NASRI identifies priority areas for research, technology and innovation, and it assesses the programmes and projects in the aforementioned areas at a national level. It is also responsible for disseminating information and coordinating the application processes for international research projects in higher education. NASRI organises the evaluation process of research activities carried out

[30] Law No. 80/2015 articles 7-17.
[31] Ibid.

in research units of HEIs every four years, and ranks them based on this assessment. NASRI allocates competition-based funding for doctoral study projects. The Agency also administers other funds for research and innovation in the framework of national programmes, international and bilateral scientific research schemes using the call for application mechanisms (European Commission, 2017, p. 12).

2.1.2 Challenges: Perpetual Transformation, Uncertainty and Antagonism

One of the key issues of the science system in Albania that impacts science communication is that of the perpetual transformation of the higher education and scientific research. The on-going reform process has been crucial to the progress of the science system in the country by creating more opportunities for students and academic staff alike, opening up the system to European Research and Higher Education Area, moving towards internationalisation and better quality of study programmes and scientific research. However, constant transformation has created disorientation within HEIs and research centres and also confusion amongst scientists and researchers. One of the interviewed researchers pointed out that: "*our university simply cannot provide answers to our questions about academic qualification and career path because the MESY does not seem to know yet…[referring to bylaws]. The thing is though I need to know what criteria I am obliged to fulfil for obtaining my title of full Professor*".[32]

Second, the perpetual transformation has been accompanied by legal uncertainties. For example, although the new Law No.80 on higher education and scientific research was approved in July 2015, the bylaws and new institutions are not yet introduced two years on. As one of the researchers highlighted: "*we operate in an environment of uncertainty whereby most of the things are placed on hold till the law is fully implemented and the bylaws are introduced. We hope that this will not take another two years, because otherwise we might have a new government wanting to repeal the Law No.80/2015 all together*".[33] HEIs and their academic staff, scientists and researchers are thus operating within a changing legal framework whereby substantial issues are placed on hold, such as funding for national research projects by NASRI or methodology and indicators of scientific research performance indicators.

Another key issue of the science system in Albania impacting science communication relates to the dichotomy of public vs. private provision of higher education and research. This dichotomy, (re)produced by the discourses on higher education and research in the public spheres, persists in the antagonistic positions of the two sectors. Public vs. private HEIs are deemed not simply as partners or competitors but rather as enemies. This hinders peer-to-peer communication among researchers in Albania, but also the reputation of research conducted in these institutions. In this light, one of the journalists interviewed for this research project underlined that: "*on one side we read all the time in the online media, but also in the mainstream media, about these low quality private HEIs; on the other side, we hear about the endemic problems of public HEIs…now how can I, as a journalist, trust the research results of study conducted in either one of these sectors? How shall I*

[32] In-depth interview with researcher in communication and media studies, September 2017.
[33] In-depth interview with researcher in political sciences, September 2017.

judge?"[34] What is more, this antagonism is fueled by heated and negatively charged debates regarding the reforms on higher education and research. These debates form narratives that focus primarily on personalisation, political biases, vested interests to maintain the status quo, individual conflicts between academics and less on addressing root causes and solutions to improve science system in the country. The dichotomy public vs. private can also be seen in the existence of two Rectors' Conferences – one for the public HEIs and one for the private HEIs known as the Independent Forum of Rectors. One might argue that given that these conferences do not meet together, then what is there to be said about cooperation between public and private HEIs. Nonetheless, cooperation between HEIs from public and private sector is facilitated to a large extent by participation in international project financed by European Union and other donors. For example, Erasmus+ Capacity Building in Higher Education projects require at least two HEIs participating from one partner country like Albania in project consortia.

Finally, even though the legal and policy framework following various reforms have introduced significant changes in the higher education and science system in Albania, the independent regulatory and monitoring institutions are not consolidated in practice to be able to guarantee the quality of higher education and research. In some cases, they are envisaged in the letter of the law, but not operational yet such as the National Agency for Higher Education Financing. The delay in introducing this agency has created another research funding vacuum, because it is supposed to provide research grants to academic staff to perform their research activities. In other cases, they are not yet well established and fully operational, lacking necessary human and financial resources. For instance, NASRI has not yet introduced the scientific research performance evaluation system and indicators, thus leaving HEIs and researchers perplexed on the pressing issues of science evaluation. More so when the law stipulates that scientific research public funds will be available based on performance.

2.1.3 Scientific Publishing: From Quantity to Quality

Based on the science communication performance indicators – detailed in Annex VI – the analysis will focus into the following aspects of peer to peer communication in Albania: (i) scientific publishing in international peer-reviewed high quality journals and the status of Albanian academic journals; (ii) participation in and organisation of international conferences; (iii) academic publishing of monographs with international and Albanian publishing houses; (iv) other scientific events such as research seminars, doctoral workshops. Finally, the analysis will focus on the role of peer-to-peer communication in the career path and academic qualifications of scientists and researchers in Albania. But first, we will explore institutions and people who conduct scientific research and thus participate in peer-to-peer communication.

2.1.3.1 Quality of Research and Availability of Funds – Social Sciences Research

Science and research in Albania is produced mainly in HEIs, the Academy of Sciences and research centres or institutes linked to line ministries. Currently there are 15 public HEIs, 26 private HEIs and

[34] In-depth interview with journalist, September 2017.

about 20 research institutes, notably the Centre for Albanology (European Commission, 2017, p. 10). The Academy of Sciences, as the higher scientific institution in the country, has played an important role in research in Albania in the period between 1972 and 2006. However, currently the role of Academy is curtailed and awaits transformation. Recently the Academy has established the Academy of Young Scientists with a primary focus on Albanian studies. The role of the Academy and the Albanology Centre are yet to be consolidated following the Law No.80/2015 and the new strategy on scientific research initiated in 2016.

In terms of the staff carrying out science and research activities, the Law No.80/2015 clearly distinguishes between professors, lecturers and assistant lecturers. This implies a distinction between a teaching career path and a research one. For instance, academic staff members who serve as principal or senior lecturers and supervise scientific research at doctoral studies fall into category 'Professor'. Academic staff members who mostly engage in scientific research and then teaching activities fall into category 'Lecturer' and need to have at least a Doctorate or PhD. Assistant lecturers hold a Master of Science degree and must comply with internal regulations regarding teaching workload. This distinction is made based on seniority, however the introduction of bylaws on academic grades, titles and career path is expected to clarify this distinction further. In addition to the career path distinction, the clarification is an attempt to emphasize the quality teaching through highly qualified staff. At the same time the aim is to support senior academic staff with assistant lecturer, thus allowing for more time to focus on research activities.

The analysis of in-depth interviews shows that the major issues when it comes to peer-to-peer communication in Albania are: (i) the quality of scientific research; and (ii) availability of funds to conduct research. One way to support these perceptions is by referring to the public funds provided for research in the past two years. Given that the agency responsible to provide grants for national research projects – NASRI – has been re-organised and there have been no open calls for research projects published in the past two years. For the period 2010-2014, it is reported that 10% of the projects focused on social sciences and received approximately 12% of the funds (NASRI, 2017: 4). In terms of international donors, the biggest research-funding programme, Regional Research Promotion Programme of the Swiss Development Agency, was terminated in 2015-2016. When it comes to EU research programmes, Albanian applicants have had a success rate of 14,4% in FP7 compared to the average of 21,6% of EU and almost all successful applications of Albanian organisations are as partners in projects led by EU institutions. When it comes to the H2020, from 2014 to 2016 the success rate was relatively low - 4,6 % with 6 successful applications, again in partnership (NSRI, 2017: 4). In addition to the quality of research, these data point to the relatively limited capabilities of HEIs and researchers to obtain available funds for research. Thus there seems to be a vicious circle whereby low quality research makes it difficult to obtain funds and limited available funds make it difficult to conduct high quality research. The implication here is that it is necessary to work on both dimensions: providing more funding, but also enhancing the competences of researchers and the institutional capacities of HEIs to conduct high quality research and further improve the success rate of Albanian institutions and researchers in grants acquisition also as lead applicants.

Obtaining reliable and systemic data on the research infrastructure, resources and human capital in HEIs in Albania is a major challenge. This is so due to the relatively limited stock taking of science and research infrastructure, resources and competences; the data collected are fragmented and rarely

published. In drafting the "National Strategy for Science, Technology and Innovation- NSSTI 2017-2022, the MESY carried out what was claimed to be a national census that would collect data on several fields related to scientific research, especially in terms of assessing the human resources working at the HEI-s. The so-called census has major constraints in terms of design, method of data collection, response rates, data analysis and representation and therefore it cannot be used with confidence. Despite the major concerns, the data confirms some already existing assumptions: first, the majority of scientific research resources and staff are allocated at the University of Tirana, the biggest and oldest university in Albania; more than half of all HEIs declare to have some sort of scientific research laboratories and related infrastructure; the majority of academic staff work for public universities with about 20% working in the private education sector; young academic staff are more actively involved in international projects and research activities; about 50% of researchers in Albania are in the field of social sciences and humanities, including economy and business studies. Thus confirming the necessity to prioritise funding and support for social science research in the country. 15% of staff is in the field of economy, finance and business and 3% in political science and international relations. The responses on questions about capacity in scientific research had a no response rate of 70% therefore making the data impossible to use.

2.1.3.2 Publishing in International High Quality Peer Reviewed Journals

The interviewed researchers argue that both factors – quality of research and availability of funds – ultimately impact the quality and quantity of scientific publishing and other scientific outputs. Albania has a relatively low level of participation of researchers in international scientific publication in high quality journals when compared to others in the region. For instance, the UNESCO Science Report in 2015 shows that the scientific publication density in Albania for 2010-2014 was 48 per million inhabitants compared to Serbia 503 and Slovenia, which had the greatest publication density in South East Europe with 1509 publication per million inhabitants (UNESCO Science Report, 2015: 283). Moreover, this research project looked into the Web of Science Database and SCOPUS in order to obtain data on scientific publishing in international peer-reviewed high quality journals as shown in Table 1.

Table 1: Web of Science and Scopus - Participation of Albanian scholars

	Total records	Records 2013-2017	Articles	Conference proceedings
Web of Science	3790	274	162	85
Scopus	4937	397	211	186

The search was done by looking at titles, abstracts and key words that referred to Albania. Also the research was refined to include only social sciences and economics. The data demonstrates that in the past four years, a total of 162 articles have been published on topics related to Albania in journals indexed by the Web of Science and 211 in journals indexed by Scopus. Nonetheless, the data does not tell us if the published articles are written by Albanian researchers or not. Therefore, we looked into the names and affiliation of the researchers to be able to distinguish between articles

published by Albanian researchers working/affiliated with an institution abroad or in Albania. The results are shown in Table 2.

Table 2: Articles published by Albanian researchers

	Albanian researchers working in HEIs abroad	Albanian researchers working in HEIs in Albania
Web of Science	75 articles	29 articles
Scopus	87 articles	22 articles

Basically, only 29 articles published in journals indexed by Web of Science are written by Albanian researchers declaring affiliation with institutions in Albania, mainly HEIs and few governmental bodies like the research centre of the Central Bank of Albania or Ministry of Agriculture. Only 22 articles published in journals indexed by Scopus are written by Albanian researchers declaring affiliation with institutions in Albania. The data shows that 46% of articles published on Albania are written by academic diaspora, 17% by Albanian researchers working in Albania and 37% are written by international scholars. From the in-depth interviews, it is evident that most of the articles are published while researchers have been working on their PhD thesis in universities abroad. By looking into the names of the researchers currently working in Albanian higher education in the field of social sciences and economics and that have published in the past four years in journals indexed by Web of Science and Scopus, the total number is less than 20 researchers. Of course this data is not exhaustive. For one thing, Albanian researchers might have published articles on topics that do not cover Albania. Also, the data does not include the entire research output for 2017 and it is limited in terms of timeframe. Moreover, it does not provide a comparative analysis with other disciplines or other countries. Nonetheless, it helps to support the claim made by the interviewed researchers that the participation of Albanian researchers in scientific publishing in international peer-reviewed high quality journals is still limited.

The reasons behind the limited participation of Albanian researchers in scientific publishing in international peer-reviewed high quality journals can be found not only in challenges with quality of research and lack or limited available research funds, but also in the regulatory framework itself on science evaluation and career path prior to 2015. The criteria to obtain doctoral degree, Associated Professor or Professor title required less than 3 publications in international journals. Also there were limited quality specific indicators in place regarding international journals, but it was sufficient to an international peer reviewed journal in an OECD country.[35] This led to high quantity of publications at the international level but in predatory journals with dubious indexing systems – such as a high number of publications in the Beall's List of Predatory Journals and Publishers. As one of the researchers pointed out that: "*Prior to the reform of 2014 and the new law of 2015, academic staff found themselves pressured to publish and obtain scientific grades and titles quickly with no specific regard on the quality*".[36] This pressure is also a reflection of the gap in the science and higher

[35] For more on the different indicators, see Annex VIII - Academic Qualifications Criteria and Career Path in Albania.
[36] In-depth interview with researcher in economic sciences, September 2017.

education system: the law required certain numbers of full professors, associate professors and PhDs for new study programmes, but the supply was limited. With the licensing of doctoral studies in more public and private HEIs in 2011-2013, there was even more demand for full professors and associate professors to fulfil legal criteria. Thus pushing academic staff to climb the 'academic ladder' faster, no matter at what quality.

2.1.3.3 Albanian Academic Journals and Scientific Conferences

This regulatory framework also impacts the scientific publications in Albanian academic journals. Prior to the Law No. 80/2015, the criteria to obtain doctoral degree, Associated Professor or Professor title prioritised publication in national academic journals with ISSN. This paved the way for each department and faculty across all HEIs to publish academic journals. These journals or scientific bulletins are usually published in Albanian as English was not prioritised. All had to be printed and have an ISSN. They usually publish quarterly issues, but also annual publications are common as well. All Albanian academic journals include an editorial board and in some cases, when published in English, an international editorial board. They also claim to follow a peer-review process and in some cases blind peer review process. The quality of the process is difficult to be assessed. The in-depth interviews point to the fact that these journals have been in place in order to ensure that all academic staff can publish their work and fulfil the criteria for academic qualifications and career path.

The same problem is also with scientific conferences, particularly with the numerous so-called 'international scientific conferences' that have been organised in all HEIs with the sole purpose to provide a platform for academic staff to present their work – in some cases more than 3 papers per conference – followed by publication of proceedings with ISBN, which is also a requirement by law. Interviewed researchers point out that "*high quality international conferences in top universities in UK and Germany have not been recognised for academic qualification purposes because they did not have publication of proceedings with ISBN*".[37] Therefore researchers have been obliged to turn to predatory or other international conferences whereby a considerable participation fee is paid. The mapping of the peer-to-peer science communication practices at HEIs in Albania as shown in Annex IX, also supports this phenomenon of a high number of academic journals and scientific conferences in Albanian HEIs. The quality of the articles that are published, papers presented and the peer review process or the role played by the editorial board is hard to be assessed. However, Scopus or Web of Science indexes none of the academic journals published in Albania. The same can be said for the national or international scientific conferences. These points to the questionable quality and the need to enable HEIs to produce high quality national academic journals as well as scientific conferences.

2.1.3.4 Academic Publishing and Career Path

When it comes to academic publishing of monographs, books, edited volumes, thesis and research reports, the majority of publications are done by Albanian publishing houses. The research shows that there are currently few leading publishing houses that publish academic work: TOENA, Tirana Times & AIIS, PLEJAD and Academy of Sciences Publishing House. The research shows that there is a

[37] In-depth interview with researcher in economic sciences, September 2017.

rapid development of HEIs university publishing houses. For instance, UET Press was established only in the last decade, but has managed to publish the latest edition of major textbooks in social sciences, law and economics in Albanian and also publishes original monographs and doctoral thesis. However, the peer review process and publication financial model of Albanian publishing houses of academic work is not clear. Interviewed researchers argue that they would prefer to publish with international renowned publishing houses but that they "*lack the skills and resources on how to approach these publishers and sometimes even the courage to write in English*".[38] Others point out that: "*while completing my PhD abroad it was easier to obtain support from the university regarding PhD thesis and thus that helped me to concentrate immediately after the completion of my PhD on how to get it published…I see no such mechanisms in place in Albania*".[39] Therefore, the establishment or reinforcement of supporting mechanisms for researchers on how to publish their work with reputable international and national academic publishing houses seems highly relevant.

In terms of other peer-to-peer science communication activities – research seminars, doctoral workshops, joint activities – the mapping of practices in HEIs in Albania[40] demonstrates that there is a growing number of such activities as a joint effort of HEIs with other partners in the country or in the region and beyond. This is as a result of the facilitation of internationally funded projects namely Erasmus+ Credit Mobility and Erasmus+ Capacity Building in Higher Education as well as other regional programmes. Also interviewed researchers highlight the implementation of performance evaluation at the institutional level, which emphasizes participation in projects, international mobility, and organisation of research seminars and workshops with peers, doctoral and Master of Science students. The goal is to develop further the institutional resources and capabilities as well as researchers' competences towards high quality research and better acquisition of research grants.

The ways in which peer to peer science communication is envisaged in regulatory framework and operates in practice is also extremely important to the career path and academic qualifications of scientists and researchers. The proposed changes in the regulatory framework towards obtaining scientific grade and academic titles – as shown in a comparative framework in Annex VIII – mark some key positive changes: first, this framework emphasis quality over quality of publications; second, it makes a distinction in criteria for academic advancements between two career paths: teaching and research; third, the framework, for the first time, requires academics to continue pursue academic advancements even after obtaining their titles though publications, but also recognizing the value of international research fellowships, international projects and successful grant applications as well as engagement in peer review processes; fourth, the award of academic titles is no more a monopoly of certain public universities, but is open up to universities in Albania that fulfil required criteria. The efforts towards high quality research in Albania have been hindered by this uncertainty in legislation for a two year-period. The Albanian regulatory framework on science performance evaluation, career path and academic qualifications has not yet been unpacked, the principles are claimed to be in line with the best practices in Europe. However, while Albanian science system is still perplexed on how to measure, evaluate and reward science, the nature of science is being transformed in Europe and elsewhere by the principles and practices of Open Science.

[38] In-depth interview with researcher in communication sciences, September 2017.
[39] In-depth interview with researcher in political sciences, September 2017.
[40] For more see Annex IX: Mapping Science Communication in Albania – Data.

2.1.4 Open Science and Open Access: Prospects for Albania

Open Science represents a new approach to the entire scientific process based on cooperative work and new ways of diffusing knowledge by using digital technologies and new collaborative tools (de la Fuente, 2017). In other words, open science describes the on-going transitions in the way research is performed, researchers collaborate, knowledge is shared, and science is organised (OECD, 2015). It encompasses six main pillars: open access, open research, open notebook science, open data, open source and citizen science and a multitude of practices ranging from pre-prints archives and repository to data sharing and scientific networks. The European Commission is leading the Open Science initiative at the European level and in cooperation with international partners from the OECD countries.

The rationale behind Open Science is complex but one of its main arguments is sociological: scientific knowledge is a product of social collaboration and its ownership belongs to the community. From an economic point of view, scientific outputs generated by public research are a public good that everyone should be able to use at no cost (de la Fuente, 2017). Scholars (Fecher & Friesike, 2014, pp. 17–47) have pointed out five main school of thoughts or underlying principles for open science: first, the democratic schools arguing that the access to knowledge is currently unequally distributed. Consequently, knowledge needs to be made freely available for every one through open access, open research, open data and open code. Second, the pragmatic school arguing for more collaboration between scientists and researchers through networking, open research, citizen science and open workflows such as Open Science Framework. Third, the infrastructure school that highlights the need for available platforms, tools, services for a more open and collaborative science. Fourth, the public school arguing for making science available to publics through citizen science, science public relations, science blogging etc. Finally, the measurement school of thought that concentrates on the need for alternative impact measurement such as the multi-stage open peer review process and the content evaluation of research work rather than JIF.

Open science is not a new term and the majority of these assumptions lay at the very foundation of science, but the high and ubiquitous proliferation of information and communication technologies have transformed the scientific practices to an extent that now a new approach is required to be understood and applied by all science stakeholders: researchers, institutions, policy makers, publishers, businesses, media and society in general. However, Open Science has barely managed to penetrate Albanian higher education and science system. At the policy level, there is no current initiative regarding the opportunities and challenges presented by Open Science. The new strategy on scientific research (NSSTI 2017-2022) envisages only a contact person within the NASRI to serve as a resource person and liaison between European Commission and Albanian stakeholders on issues related to OS. The vision and objectives of the strategy do not integrate the underlying principles of OS. In this light, policies on research, science, innovation and higher education need to respond the emerging trends of OS in Albania as well. Hence, there is a clear need for political commitment to promote Open Science and integrate it into the government agendas, implement policies and allocate resources (Bartling & Friesike, 2014; de la Fuente, 2017; European Commission, 2016).

The in-depth interviews show that few researchers had a full grasp or even a partial grasp of open science principles and practices. One of the researchers argued that: "*science communication should be about science approaching the publics, but also the publics participating in science*". This was the

only implication and reference to citizen science in the data gathered. What is more few HEIs working toward open science. Mostly this is in the form of open access online journals. For instance, as of July 2015, only two OA journals published in Albania are listed in DOAJ: (i) Academicus: International Scientific Journal, covering social sciences research; (ii) Albanian Journal of Agricultural Sciences, the key journal of the Agricultural University of Tirana. The Directory of Open Access Scholarly Resources (ROAD) further lists 3 more OA journals published in Albania: (i) Albanian Journal of Mathematics; (ii) Albanian Medical Journal and (iii) Albanian Journal of Pharmaceutical Sciences and 1 institutional OA repository from Epoka University is registered in OpenDOAR. With the facilitation of international donors and the new legislation on access to information, Open Data is a recently established, but fast growing initiative that promotes transparency though the publication of data regarding socio-economic indicators and public spending in Albania. The Albanian Institute of Science, a NGO established in 2015 by lecturers of Polytechnic University of Tirana, manages Open Data and Open Spending with the support of many international donors.

Despite its potential, open science faces some important challenges and the ways in which they will be overcome will impact the nature of science. Particularly relevant for Albania is the set of challenges that refer to the socio-cultural context whereby the scientific community operates. The lack of awareness on the benefits and importance of opening up their research; the reluctance to change their current workflows and practices regarding the release of data along the research process; researchers consider it as a time and effort-consuming activity adding to their existing workloads; the diverse approaches that researchers have from different disciplines or at a different stage at their career; or the lack of a clear recognition and a reward system that promotes OS practices are some of the main constraints on OS (de la Fuente, 2017). What is more, changes that are necessary at the level of universities and research centres in order to integrate OS principle and practices are not yet happening in Albanian HEIs. One positive achievement is the online pre-print publication of all PhD theses for all HEIs. The mapping of the current science communication practices in HEIs in Albania confirmed that all institutions publish the awarded PhD thesis on their own repositories online. However, it is not easy to navigate yourself in the HEIs websites to find the PhD thesis repository.[41]

The second set of challenges refers to the technological and infrastructural transformations that are necessary for OS being at the European, national or institutional level (Bartling & Friesike, 2014). Ultimately this also relates to the competences of researchers, scientists, administrators, librarians and other human resources in universities, research centres, government, funding bodies to contribute to and make use of OS. For example, the digitalisation of libraries in Albanian HEIs is a major priority, also addressed by the NSSTI. In order to benefit from OS and to be prepared for its full potential, research infrastructure and other technological advancements – data management systems – need to be further developed in HEIs. In addition, Albanian universities, research centres and other stakeholders in the science system need to plan strategically and develop policies to respond to Open Science. In addition, a legal framework of data usage and disclosure needs to be developed as well as financial mechanisms to support Open Science. Albanian stakeholders also need to address these institutional challenges and prepare their structures and staff for OS.

[41] For instance this is the official site of Faculty of Social Sciences: http://fshs-ut.edu.al/kerkimi-dhe-botime/; but the pre-printed online PhD thesis are not published on this site, but on the central university site – see http://www.unitir.edu.al/.

In conclusion, open science with open access to scientific research publications as a main feature is desirable for many educational, economic, and scientific reasons and it provides major opportunities for the improvement of scientific communication, research quality assurance, and evaluation (Curry, 2017a; Curry, 2017b; Spezi et.al. 2017; Smith, 2015; Eisen, 2003; Pinfield, 2016; Pöschl, 2012). First, the symbiotic coexistence between open access and traditional scientific publishing enriches the peer to peer science communication and enables interactive and transparent forms of review and discussion open to all interested members of the scientific community and the public through multi-stage open peer review process. Second, it helps to overcome the monopoly of the current practices of scientific publishing through open sources, open data and research, open notebook science and citizen science. Thus, open science has the potential to contribute more to innovation and scientific discoveries through prioritising rapid dissemination and sharing of research work. Because OS poses such a radical transformation to science communication and science per se, its implications might be even more challenging in the case of Albania, whereby the science and research infrastructure, resources and competences are relatively limited. Furthermore, while the reformation of higher education and science system in Albania claims to draw on well-established academic model in the 'West', the foundations of said model are being put into question by OS. Rather than a fixed model to follow, Albanian higher education and science system has to keep up with a changing and dynamic model as well as respond to diverse demands at home. Hence the OS poses both opportunities and challenges that need to be addressed accordingly.[42] This then leads us to the impact of scientific discoveries in society whereby the communication between science and policy development processes comes to central stage.

2.2 Science and Policy Process in Albania

This chapter will analyse the science to policy dimension of science communication. It starts by providing an overview of how policy development process functions in Albania by considering main achievements and challenges. It will then unpack the social sciences relation to policy by exploring institutional aspects, personal motivation and competences of researchers, communication and trust gap, funding and resources and other factors.

2.2.1 Policy Development Process in Albania

Policy development cycle - processes, tools, actors and stakeholders - constitute a very complex area of research and practice. Due to scope and space limitations, this research report cannot elaborate on the complexity of policy development cycle in Albania. Nonetheless, in order to understand the current practices of science communication to policy and propose alternatives, it is necessary to highlight the key features of the policy development cycle in Albania. First, policy development cycle in Albania is situated within the context of a free market economy and representative democracy that have undergone through multifaceted challenges and transformations. Second, the democratization processes and European integration ambitions deeply impact the ways in which policies and decisions are made (Xheneti & Kitching, 2011, p. 1019). For instance, the role of EU

[42] For more see Recommendations.

conditionality on policy and legislation is broadly studies. In addition policy transfer is an integral part of the democratization processes that transforms ideas into policy whereby international actors such as World Bank, International Monetary Fund, European Commission – to mention but a few – play a critical role (Karini, 2013, p. 471). What is more a political landscape characterized by adversity, power struggles and polarisation has profound implications for all aspects related to policy development in the country.

Policy development cycle in Albania is carried out by a multitude of actors through interlinked processes. One can differentiate between legislation policy, executive policy making and local policy making that mirror the division between central and local government as well as legislative and executive power branches. The judiciary plays a key role in ensuring the compatibility of legislation with the Constitution and International Treaties. Other actors include the civil society with interest groups, trade unions, advocacy groups; the political party and their members; media; academia and research community as well as external actors. Table 3 provides an assessment of the performance of policy development areas, pointing once more to the pressing challenges of public policy in Albania.

Table 3: Assessment of public policy in Albania[43]

	Evaluated areas	Scores (From 1 up 5)
a	Policymaking: Central Government and Coordination Structures	3.6
b	Policymaking: Development of Policies and Quality of Legislation	3.4
c	Public Administration Organization: Organization of State Administration	2.6
ç	Civil Service: Human Resource Management in Public Administration	2.9
d	Administrative Procedures and Oversight – Inspections and Controls: Administrative Decisions, Checks and Balances;	3.8
dh	Public Administration Reform: Management and Coordination	3.7
e	Inovative Governance as a horizontal approach across all areas	2.8

Despite achievements, challenges remain such as the risk of a fragmentation of the process, lack of transparency and genuine consultation with stakeholders, use of evidence in decision-making processes (Dauti & Bejko, 2015). Since 2014, Albania has a new and arguably improved law on the right to information – Law No. 119/2014. In addition to that in 2014 a law was passed about public consultation of policy and legislative acts – Law No.146/2014. The main goal of this law is to encourage the participation of the public and interest groups in decision-making and governance, and raise the efficiency, transparency and accountability of public institutions toward the public.[44]The law was adopted after a three-year campaign by civil society organizations under the framework of Albania's membership of an international initiative called the Open Government Partnership.[45] As part of the Open Government Partnership, the government obliged itself in 2012 to promote transparency, fight corruption and harness new technologies to strengthen governance. The commitments address three of the initiative's principles: increasing public integrity, improving public

[43] Source: MIAP & DAP Strategy 2015-2020, p. 7.
[44] Law No. 119/2014 "On the right to information" and Law No.146 / 2014 "For notification and public consultation".
[45] For more refer to https://www.opengovpartnership.org/countries/albania.

services and more effectively managing public resources. The new law institutionalises public consultations in the process of drafting and approving legislation, national and local strategies as well as policies, which are of public interest. What is more, since 2016 efforts have been made to establish an electronic registry for public notification and consultation.

However their effective implementation remains limited (Dauti & Bejko, 2015) Proper ex ante and ex post assessments of policy is another challenge that leads to frequent amendments of laws and policies. Also this framework does not tackle the science to policy dialogue for evidence-based policy making, which will be analysed in the following section in more detail. There is a tendency among policy-makers to argue that they do undertake consultation meetings with interest groups and stakeholders in general.[46] It is to distinguish between these two processes – evidence based policymaking vs. public consultation – and that one cannot replace the other.

2.2.2 Science to Policy: From Listening to Acting

A key national decision-making system for drafting policies and strategies in Albania is the Integrated Planning System (IPS). IPS is supported by other mechanisms such as the establishment of the Development Programs and Strategic Planning Coordination Unit at the Office of Prime Minister, establishment of the Foreign Funding and Aid Unit, establishment of the Legislation and Programs Monitoring Unit and the Priorities Implementation Unit (MIAP & DAP, 2015). However, the effective functioning of the IPS requires the development of information systems for various components such as the already established Medium Term Budget Program (MTBB) for all line ministries. In addition, the Strategic Management Group (SMG), which is chaired by the Minister and coordinated by the Secretary General, operates in each ministry and is in place in each ministry since 2006. This group is responsible for reviewing issues related to strategy, budget, donor funds and IPA. Another mechanism is that of the establishment of Inter-Ministerial Working Groups (IWGs) at the political level and technical level (coordinated by the ministry leading the process) in the frame of the process of drafting cross-cutting strategies (MIAP & DAP, 2015).

Another initiative that facilitates the dialogue between science and policy is the establishment of the Centre of Excellence at the Ministry of Europe and Foreign Affairs in 2014, which brings together experts, researchers and diplomats to work on foreign affairs policy. The Centre has also opened various calls for policy papers and reports funded by international donors operating in Albania. In addition, the monitoring and evaluation of the Action Plan on the Integration of Roma and Egyptian Communities based on the National Strategy for Social Inclusion is carried out by working groups of both policy makers and researchers. The Roma Inclusion Programme of the Regional Cooperation Council facilitates this. With the changes in government structure and the dissolution of the Ministry of Social Welfare and Youth it is not clear yet how this will work in the future. The in-depth interviews point to the crucial role that the Development Programs and Strategic Planning Coordination Unit at the Office of Prime Minister could have in setting up thematic working groups that could reinforce the dialogue and networking between science and policy. Moreover, the research unit at the Parliament of the Republic of Albania could be strengthened in terms of

[46] In-depth interviews with policymaker, October 2017 and data from RRPP Policy Dialogue, Tirana, May, 2014.

capacities and resources to work more with research communities and thus feed legislators with evidences for their work on Parliamentary Committees. The common feature of these initiatives is the strong push on the side of the international donors towards reinforcing science and policy dialogue in the country.

One of the main initiators has been the Swiss Development Cooperation through the Regional Promotional Research Programme Policy Dialogue and more recently with PERFORM. The common aim has been that of fostering evidence – informed policymaking practices in Albania. An understanding of the current state of evidence-informed policy-making in Albania is possible based on the data gathered during RRPP Policy Dialogue forums, workshops and national conferences for the period 2013-2016. The qualitative data covers these main elements of science and policy dialogue: the capacity of policy-makers to use research; the capacities of researchers to produce quality outputs; the institutional structures, communicative spaces and other incentives that make the cooperation possible. The RRPP qualitative data, the data from the in-depth interviews and the review of secondary resources confirm the weakness of the current linkages between social sciences research and policy development processes in Albania. The underlying factors that need to be unpacked can be found both on the supply side – researchers asserting their potentials and competences in contributing to policy making – and on the demand side – the policy makers being aware of the value of evidence-informed policy making and establishing mechanisms and resources to facilitate the science to policy dialogue.

As regards the supply side, the findings show that social scientists find it very challenging to engage with policy makers. The motivation of individual researchers to engage with policy research and policy makers/decision-makers is determined by a variety of factors (Shaxson, 2017). First, through the in-depth interviews we found that researchers who had personal previous connections to and experience with policy makers and practitioners either at the central or local level tended to engage more in policy-oriented research and found it less challenging to do so. As one of the senior researchers pointed out: "*my experience serving as a Member of Parliament and advisor to the Office of Prime Minister as well as my work with the Bank of Albania, has helped me to understanding the underlying logics of how policy and decision making works and in a sense this has helped my research too*".[47] Second, researchers vary in their intentions towards public engagement as well as in their pace of engagement. Some researchers are not interested in doing policy-oriented or applicable research and prefer to continue their work on basic scientific research. Third, researchers also have different research priorities that do not necessary collide with the impact agenda and policy oriented research. One of the researchers emphasized that "*my research area is very specific and mainly theory driven, it requires a lot of data collection and thus funding, before I am able to produce any meaningful results and my priority is the quality of the research and not the its potential link to a certain policy action*".[48] Fourth, resources and personal competences necessary to engage with policy makers are developed at different levels amongst researchers. As such the common denominator of all in-depth interviews with researchers regarding their engagement in policy research was "*lack of availability of funds and the adequate competences to carry out policy-oriented research with meaningful and applicable results for policy makers*".

[47] In-depth interview with researcher in economic sciences, September 2017.
[48] In-depth interview with researcher in economic sciences, September 2017.

In addition to personal motivation, the engagement of researchers with policy makers will depend also on the institutional support and the role that this engagement plays in academic career path and professional status. As highlighted by the interviewed researchers, so far HEIs do not have strategies and mechanisms in place to support the engagement of their researchers with policy making. Main issues remain: provision of funds and resources, capacity development and use of knowledge brokers to facilitate the links with policy makers. Some case studies were mentioned but mainly as part of a project funded by donors or as ad hoc activities, none of which is sustainable and does not form part of the research strategy and vision of HEIs. This has then led to many researchers acting as freelancers and experts for think tanks and NGOs in Albania that receive considerable funds from local and international donors to do policy and applicable research. The interviews with think tanks representatives showed not only their engagement in policy making, but also that they work with contracted academics as freelancers for particular initiatives. Some think tanks are even working on establishing networks of innovators or knowledge brokers to facilitate the link with policy making. The lack of financial and other resources for social scientist researchers to engage in policy-oriented research is a main hindering factor. Also the current regulative framework on academic career path and professional status does not encourage researchers to engage in policy-oriented research. Thus HEIs should respond by developing strategies and allocating resources to engage their researchers in policy making processes.

Another challenging aspect of the science to policy dialogue is that of the disconnect between supply and demand, which means that while there is a fast-changing demand policy context – the demand side – there is a relatively slow research process with very limited funding options – the supply side. One of the policy makers argued, "*time is a key element and we have different perceptions of time…we need fast answers, but researchers need time to come up with the answers*". Moreover, although some initiatives are being implemented to foster the dialogue between social sciences and policy actors in Albania, there are limited opportunities to network with policy makers. Two positive case studies were found: first, the Council of Ministers and the World Bank are working on an integrated earth management incubation policy and have set up a working groups composed by researchers, policy-makers and international experts; second, the Council of Ministers have signed two Memorandum of Understandings in 2017 with the Faculty of Economy and Faculty of Law, University of Tirana, to conduct regulatory impact assessment. Researchers highlighted successful cases when their research informed policy-making with the establishment of working group composed of researchers, policy makers and international donors/experts.

These case studies point to two issues: first, setting up working groups or knowledge communities that bring together researcher, policy-makers and other stakeholders to work on particular areas have proved successful. This working groups or knowledge communities can be permanent or temporarily. They can also be intermediated by knowledge brokers. The second issue is that the international donors almost always facilitate science to policy dialogue. That is the case with the World Bank and the Council of Ministers, PERFORM and the Ministry of Economy or the Ministry of Education, Regional Cooperation Council and the Roma Integration Public Policy and Action Plan; Swisscontact and professional education – to mention but a few. The facilitation of the international cannot be sustainable and it lacks ownership. Science to policy dialogue and networking opportunities need to be embedded in the public policy process and not only ad hoc initiatives facilitated by donors. One example here is the usage and share of vast amount of data produced by public institutions. As one of the researchers highlighted: "*the value of the data is in their use…if we*

do not use the data produced by our institutions, then what is it there for?"[49] Apart from Open Data and Open Government programmes, it is important that public institutions create and promote a culture of open access and sharing of their data through integrated online repository of data and resources that could be used by both researchers and policy makers.

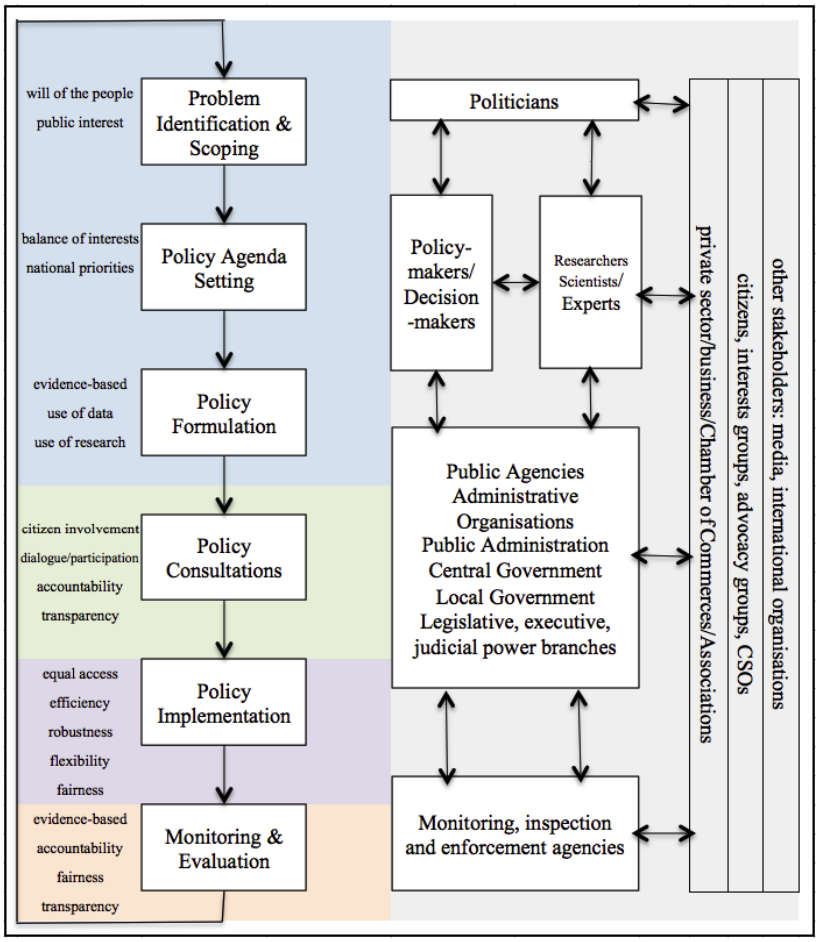
Another challenging aspect is the mutual distrust regarding the relationship, reputation and legitimacy of policy processes and research. Basically researchers do not trust policy makers based on the assumption that their actions are determined by political aims, EU conditionality or vested economic interests. On the other hand, policy makers doubt the quality of research and reliability of data provided by social science researchers in Albania. Such mutual distrust is also fueled by the unclear policy processes in Albania and issues related to corruption and lack of transparency. The mutual distrust issue refers again to the quality of research that is produced in Albania, but also to the readiness and willingness of policy-makers to bridge this communication and trust gap. The data shows that both researchers and policy makers argue for the need of intermediaries or knowledge brokers that could transfer the results of research to the policy-makers and transmit policy priorities to researchers. Some researchers argued that this could be done by think tanks given their current active role. Others argued that the knowledge broker should be an intrinsic part of HEIs and public institutions. Finally, social science cannot provide universal solutions to societal issues and most often the research findings are incomplete or ambiguous, which makes it difficult to present to policy makers as strong arguments for policy actions. This has to do with the very nature of how social science is carried out and more concretely its practices in Albania. One of the interviewees highlighted: "*We conduct research, elaborate data and instead of finding solutions, we increase the number of "why-s". This is not what policy makers are looking for; they just need a simple message, some alternatives on what to choose and the last but not least, they want to spend less money and have higher achievements".*[50] In addition, there might be tensions between the policy makers' priorities and research recommendations.

The mapping of the current science communication practices in HEIs in Albania and the in-depth interviews with researchers and think tanks representatives confirms that the prevailing practice is that of publishing policy papers, policy briefs, papers and reports. These vary from 2 to 10 and sometimes even 30 pages and are usually posted online. However, there is no integrated electronic repository so far that contains all policy publications and relevant data. In terms of science to policy events the most frequent activities are joint workshops, national conferences or even regional ones facilitated by international actors and thematic roundtables initiated by various organisations being HEIs or think tanks. In terms of sustainable linkages and infrastructures, the mapping shows that so far there are no Policy Labs established in universities, but there are research units and centres that might as well conduct policy oriented research. However specific policy-oriented research units or science-policy relations and networking units were limited only to very few institutions, such as the case of Polis University and its CoPlan institute working on urban development. In terms of the public institutions, the reformation of public administration, the digitalisation of public services and the re-configuring of the ministries with the new government are interlinked processes that might create opportunities for establishing or reinforcing research and innovation units.

[49] In-depth interview with researcher in economic sciences, September 2017.
[50] Interview with researcher in political sciences, August 2017.

In this light, producing and disseminating policy-briefs is simply not enough, although still necessary. The review of literature and the data gathered on communication between science and policy pinpoints to two factors that help promote this dialogue: (i) communication should be participatory, flowing in both directions between scientists and policy-makers; and (ii) trustworthy organizations need to fill in the role of mediators such as knowledge brokers. Participation in an on-going dialogical process is now considered as a crucial standard to bridge the gap between scientists and decision-makers (Russell, 2010). First, this helps scientists to understand better the needs and demands of their audience. Second, participation is the means for scientists to learn about local knowledge and relevant facts that could play a role in their research project. Third, through the participatory process, scientists and policy-makers can overcome misconceptions and misunderstandings. Fourth, participation is a way of developing an implicit connection between scientists and decision-makers that is necessary to improve trust in the information. A model of science to policy is presented in Figure 1.

Figure 1: Policy steps, values, actors and flow[51]



The analysis of in-depth interviews shows that researchers consider as a fundamental determinant to bridge the gap between researchers and policy makers the provision of incentives to engage in policy-oriented research. Suggested incentives are not only financial, but also including policy-

[51] Source: Authors' elaboration based on Janssen & Wimmer, 2015.

oriented research into the official academic credentials and career path or even balancing teaching load. In addition to the intention of researcher to engage with policy processes, the support of institutions for researchers who engage with policy domain is decisive factor. Some researchers also suggested the need for HEIs to develop specific strategies of collaboration with policy and private sector. As one of the interviewed researcher argued: "*There are endless social phenomena that we do not understand or study in Albania as well as pressing policy issues; instead we keep organizing scientific conference, invite people from abroad because we were not capable to create a legacy of our own and impact our own environment and communities we work and live in*".[52] The plethora of studies on science to policy cooperation suggests that if researchers do not engage with the policy domain or the public, then intermediaries such as knowledge brokers are emerging as an alternative. In addition, recently the concept of policy entrepreneurs is gaining ground, i.e. people or institutions that invest time and resources to advance a position or policy and thus stimulate the demand for research (Research into Action, 2017). The findings of this research confirm that knowledge brokers are essential to the communication of research into policy domain in Albania and that HEIs could draw on the best practices and achievements of think tanks in this regard. Finally, the constant and on-going dialogue between research and policy domains is necessary while at the same time achieving of balance that does not affect quality of research in favour of political decisions. One of the interviewees argued that: "*I am a bit reluctant in doing policy research because I am not willing to compromise when it comes to my research…so I wish to avoid political or donor pressures to present findings in a certain way*."[53] In other words, researchers provide the options; it is the policy makers and ultimately politicians who make the decisions on policy. A few key researchers that have an established reputation in Albania in policy research suggested that scientists themselves should apply different strategies for communication of their research into the policy area. This leads us to the third pillar of science communication – society and media relations.

2.3 Science to Society in Albania

This chapter will zoom into the third dimension of science communication, i.e. the science to society in the case of Albania. It will start by looking into the current communication practices in HEIs in Albania and will then unpack the dynamics of the role of the media in science communication.

2.3.1 Communication Practices in Academia

This research project carried out a mapping of the current science communication practices at the HEIs in Albania by using two main instruments: online mapping of universities' official webpage and in-depth interviews with researchers. This exercise of data collection gathered information regarding public and private universities in Albania with a total of 22 institutions observed.[54] The indicators used for the current science communication practices are: official website; language of the website; online social media presence; Communication and Public Relations Offices; scientific research online

[52] Interview with researcher in economic sciences, September 2017.
[53] Interview with researcher in economic sciences, September 2017.
[54] For more please see Annex IX: Mapping science communication in Albania – Data.

section and/or research blogs; online repository of pre-print PhD theses; other communication tools such as newsletters, science events etc.

All observed HEIs had an established online presence through official websites, except the Faculty of Foreign Languages and the Institute of European Studies of the University of Tirana. The websites have different degree of sophistication, density and quality of information and they also vary in terms of frequency of updates. Almost all have complete information of study programmes and structure of the university such as faculties, departments, list of academic staff and basic information on student services. Some, particularly private HEIs, have very detailed profiles of academic staff including research expertise and latest publications. The majority of universities include in their website information on research projects and research activities. The majority of them have a dedicated online section to Scientific Research or Science and Projects. However, they vary in the type of information and frequency of update. Few universities have bilingual websites, i.e. in Albanian and in English. The pioneers in this regard are also private HEIs. In most cases the headings are bilingual, but then the information within sections and subsections is either in Albanian or missing in the English version of the webpage. None of the institutions observed had an embedded blogging or other science communication and discussion page. Almost all published online the PhD thesis as detailed in the scientific publication section. Few public universities produced newsletters to communicate about their activities, but it was difficult to establish their frequency.

In terms of organisational structures to support science communication, the majority of the institutions had no dedicated or specialized unit. In some cases, it was difficult to obtain information. While most universities have Communication Offices – they can be found as Marketing Office, Public Relations Unit, Communication and PR Office – none of them have personnel or units focusing primarily and exclusively on science communication. In addition, the communication units dealt first and foremost with marketing and other public relations events that targeted student recruitment. Furthermore, in large universities such as the case of the University of Tirana, the Communication Unit covers a bit of everything from student relations to international relations and project. The in-depth interviews suggest that only one or two universities are acting as pioneers or early adaptors in terms of providing capacity development, incentives and resources to their academic staff to engage in science to society communication. For instance both journalists and researchers pointed out the example of the European University of Tirana that "*in the past two years has organised specific trainings on how to communicate science through the media targeted to specific ranks of academics*".[55] With some exceptions such as Polis University, European University of Tirana and Marin Barleti Higher Education Institution, none of the HEIs include specific units or dedicated personnel to ensure the link between scientific research and the society, policy, private sector and media. However, related events such as conferences and workshops on Triple Helix and evidence-based policy making as well as roundtables with the business sector are becoming a regular period effort of the majority of the leading universities. Although the HEIs have the potential to be effective science communicators, currently "*they might have many assets, qualified human resources, but they have an unorganized structure that lacks knowledge on how to communicate science with the community out there*".[56] While social scientists at a personal level can further improve their own

[55] In depth interview with journalist and researcher in political science, September 2017.
[56] Interview with researcher in economic sciences, September 2017.

competences on communicating science to society, the research suggests that universities should take an institutional approach and provide resources, capacity-building and incentives for their researchers to be more actively involved with science to society communication.

This mapping points to some of the constraints hindering the engagement of the universities in Albania in science communication: first, internationalization of research and study programmes can be challenging if visibility of and access to information about Albanian HEIs is hard to be found by regional or European partners due to the lack of English webpage versions. Second, limited, fragmented and not up to date information on university webpage does not help when trying to attract international partners for joint scientific events or research projects. Third, researchers abroad or Albanian academic diaspora might find it exhaustive trying to find information of the research profile and work of their peers in Albania given that such information is not included or not updated on university webpages. Moreover, open online access and availability of publications such as academic journals; science bulletins and other reports of research activities are still limited to a few cases, but not a common practice of HEIs.

The in-depth interviews suggest that scientists seem to have a hard time coming out of their comfort zone – communication within academia through scientific publishing, conferences and lecturing. Another surprising finding is that none of the interviewees could provide a comprehensive and thorough understanding of the dimensions of science communication. In some cases, science communication is seen as "*communicating to knowledge to students through lecturing and mentorship*" and in other cases as "*researchers and publics coming together*". Although there are different understandings of science communication, the interviewees have the same perception in terms of current status quo of science communication: first, there is lack of awareness on the side of researchers and HEIs on the relevance of science communication, opportunities and challenges that come along with it; second, there are currently very limited institutional efforts to enhance science communication. For instance, the data suggests that currently HEIs do not have in place strategic documents, policies in practice, supporting mechanisms, recourses or guidelines for researchers on how to communicate science. Most of the initiatives are fragmented, limited to project and donor-reporting obligations or ad hoc depending on specific events such as international conferences or awarding Honorius Causa titles. Third, the degrees of interest in science to society communication as well as the competences to do so vary amongst researchers. Fourth, the majority of interviewees argue that they are eager in acquiring proper communication skills and are willing to take a course to help them learn to communicate better their research. However, the interviewed researchers emphasized the role that HEIs should play in facilitating and supporting science to society dialogue by providing the resources, the competences, but also the incentives for researchers to engage in this dialogue. Finally, despite the willingness and investments on the side of HEIs, at the end it all comes down to the personal motivation, preferences and stances of researchers regarding their role in academia and in society. As one of the researchers stressed: "*I believe the science and society would benefit most if I work in an enabling environment to that guarantees my individual freedom to decide research priorities but also how much and how often and to whom I wish to communicate my research*".[57] In the next section, the interplay of media in science communication will be unpacked.

[57] In depth interview with researcher political science, August 2017.

2.3.2 Science Communication and the Role of the Media

The current media landscape in Albania can be characterized as a *clientelistic media*, which implies a media system that is marked by a subtle and symbiotic interdependence and interrelation between media, politics and business (Bino & Kadia, 2017, p. 17). Various economic and political pressures, issues of transparency and ownership, inadequate labour relations and working conditions, ethical and quality concerns and relatively limited professionalism are some of the pressing matters currently faced by media in Albania (Londo, 2014, p. 52). Previous studies (Bino & Kadia, 2017; Londo, 2015; Londo, 2014; Londo, 2012; IREX Report 2016; Cholakov, 2015) have pointed out that professional journalism in Albanian media is relatively limited and the impact of civil society for public interest in media is weak. Media professionalism in Albania has not benefited from other actors such as the civil society or media professional organizations, which have been weak and even instrumentalised by political or economic interests (Londo, 2014, p. 57). The relatively low level of professionalization of journalism hinders the overall quality of media in Albania, and maintaining high standards of professionalism is very challenging both at the institutional and individual level. These dynamics affect also the current practices of science communication in Albania as well as future development on the relations between media and researchers.

First, there is the communication and competences gap between journalists and scientists / researchers. On one side, researchers are lamenting of the small place being given in mainstream media such as TV, newspapers and radio. But also even when researchers find that space they complain that "*journalists oversimplify my findings and tend to run to sensationalist headlines that do not necessarily reflect the main findings of my research*".[58]Thus journalists are perceived as lacking expertise and necessary knowledge to understand and translate research findings to content that makes sense to the publics but also stays true to science too. On the other side, journalists contend that: "*scientists are very complex and slow and do not have a good grasp of media logics…also they lack communication skills needed to relay information to the public*".[59] This gap is not just about miscommunication and prejudices, it also points to the issue of professionalism of journalists – skills and knowledge they have to cover science – and communication skills and interests of researchers.

When it comes to the use of alternative media to communicate science, this research finds limited cases of effective science communication through alternative media. For instance, few universities have an official Facebook or Twitter account and those that have use it primarily for student recruitment, announcements regarding academic activities and calendar. However, Facebook and Twitter are also used to promote other activities – scientific conferences, international project meetings – but rarely for specific science and research communication. So far, universities do not have established rules and guidelines regarding their online presence and this might overwhelm them and imped the use of such options for science communication in a professional and effective way. Also researchers, at a personal level, still consider Facebook as 'leisure time passing' and thus not an appropriate platform to share scientific work. This research found fewer researcher having Twitter accounts. Blogging is also relatively new and few academics have set up a blog. This has become mainly the activity of 'analysts' or 'opinion-makers'. A study conducted by the Department

[58] Ibid.
[59] In depth interview with journalist, September 2017.

of Communication, at the European University of Tirana,[60] tried to find out who were the most liked people on Social Media. Given that Facebook was the social network with the highest penetration in Albania, the classification was based on the most liked profiles of this website. The selection criteria grouped 100 people in 4 main categories; Politicians, Individualities, Art –Sport and Entertainment. The category "Individualities" was in hunt of those individuals who were famous for their intellectual work and/or research and had a say in bringing new and innovative ideas to the public discourse. Out of 100 hundred most liked people on Facebook in Albania as of October 2017, only two professors made the list. The study suggests that the people are more inclined to like posts by the entertainment industry or politicians, paying less attention to fan pages or people who try to bring more information about science in this virtual reality.

In other word rather than science journalists, regular reporters usually cover science in media outlets in Albania due to the constraints mentioned above. This is also related to the media logic: "Editors and reporters tend to value stories that contain drama, human interest, relevance, or application to the reader, criteria that do not always map easily onto scientific importance" (Brumfiel, 2008). Furthermore, the mapping of journalism curricula in Albania as shown in Table 4, suggests that currently there are no bachelor programmes offering higher education degrees in science journalism. In addition, there are no specific courses preparing future generations of journalists on how to cover science in the same way they do on how to cover politics and economy. The mapping suggests that in the past four years no PhD thesis has been published on science journalism or science communication. This implies that HEIs are not preparing future generation of journalists to be science journalists. Also knowledge on science journalism and science communication are limited considering that research is this regard is almost non-existent.

Table 4: Mapping of science journalism in Albania[61]

University	Degree level	Programme	Science Journalism
University of Tirana, Department of Journalism and Communication	Bachelor, Master, Doctorate	Art and culture journalism Political journalism Economy journalism General journalism Public Relations European and international journalism Intercultural communication Marketing media Media management	Not included in any of the listed syllabus for the BA Level Not specified for MA level courses No doctoral thesis on science journalism / communication

[60] First report published Published on Mapo Magazine, October 09, 2017.
[61] Source: Authors.

European University of Tirana, Department of Public and Communication	Doctorate	Communication studies	Creative writing - Journalism to be opened as a new BA Programme and include science journalism; No doctoral thesis on science journalism; Professional training on science communication
University “Aleksandër Xhuvani” Elbasan	Bachelor	Journalism: history, language, literature, politics, art, culture and sports	Not included in any of the listed syllabus for the BA Level
University "Luigj Gurakuqi" Shkodër	Bachelor	Journalism and Communication	Not specified, most of academic staff are external

When it comes to the presence of social sciences research in mainstream media, this research looked into 13 mainstream media outlets: 4 general audio-visual broadcasters, 4 news channel and 5 national newspaper.[62] In addition 7 online media outlets were mapped such as news online platforms. This mapping exercise suggests that: first, half of these mainstream media had a dedicated science and technology section. Fewer online media platforms include a dedicated science section. However the content provided was primarily translation of international news on science and technology in the form of curious cases. Second, mainstream media covers social sciences research when the findings matter most for the socio-economic and political development in the country. Also the in depth interviews suggest that journalists value unambiguous research findings with a clear and simple language and style of writing. Third, none of the outlets had an access or entry point such as name of person in charge of science section or contact details that could be approached by scientists. Although in-depth interviews suggests that personal and informal networks work best.

Fourth, the presence of social scientists and researchers is in the form of ‘public intellectuals’ or ‘analysts’ and ‘opinion-makers’. These individuals are invited in various media programme formats such as morning talk shows, political talk shows and even as experts for fashion and sports shows. However, in other cases, social scientists are invited in the capacity of expert to discuss pressing social issues often in later afternoon shows. Also researchers in economic sciences are more often invited as experts not only in talk shows, but also during prime time news editions to discuss governmental financial and economic policies. In the case of online media platforms, social sciences researchers are present in the form of authors of op-ed and other commentaries. Only MAPO Newspaper has a dedicated supplement to research, which is publishing monthly as MAPO Research. The same newspaper has a weekly supplement focused on higher education.

[62] For detailed data see Annex X: Social Sciences Presence in the mainstream and online media in Albania.

The in-depth interviews suggest that the prevailing presence of 'analysts' or 'opinion-formers' as experts who talk about everything all the time has led to the discouragement of high quality researchers to engage with the media. This also reflects the stance that 'good communicators' are not 'that good researchers'. As some of the researchers argue: "*it would be better to keep a low communicative or mediatized profile and thus have more time and space for our own research*". For most interviewees science communication is to a large extent equal to appearing on TV shows or writing a newspaper article such as op-eds. Almost all interviewees consider science communication as a 'burden', something researchers had no interest and no time to do. When it comes to online social media they are still considered by far as leisure and time-consuming activity rather than a genuine medium that could be used to communicate scientific research. Ultimately the major concern of the researchers when it comes to relations with media was the quality of research: "*no quality research, nothing to communicate about*". As one researcher highlighted: *"to simply provide additional training to our researchers without addressing the fundamental flaws of their education, is like putting rims on an old Golf and expecting it to drive faster. It's a flawed logic. The problem is endemic and institutional. It requires profound changes and not cosmetic interventions."*[63] This brings again to central stage the paramount importance of quality of research.

[63] In depth interview with researcher political science, August 2017.

3 Study Serbia

3.1 Introduction: Science communication in Serbia

The field of science communication is experiencing a dynamic and rapid change, as the science itself. In order to make scientific research and results more visible and socially relevant, a number of questions have been raised and new forms of science communication have been proposed recently. These discussions offer important findings regarding the relation between science, its policy influence and decision making based on evidence, as well as the nature and role of scientific communication. This research aims to analyse the current practices of science communication in Serbia, with a thematic focus on the fields of political and economic sciences, with the purpose of proposing recommendations for enhancing its effectiveness. With that aim, the research is structured in three broad sections, focusing on the peer-to-peer and scientific communication among the scientists and researchers; communication between science and policymakers; as well as the practices of science communication to wider public.

In order to examine the current practices of science communication in these broad fields, the research applies a qualitative research approach. Following the desk research focused on the review of literature, legislative and institutional frameworks, data were gathered through semi-structured in-depth interviews with representatives of relevant state institutions, members of scientific and research communities, as well as representatives of think tanks, NGOs and media, in order to gain more insight into the practices of their mutual cooperation, identify existing obstacles in the communication of scientific research, as well as the potential for greater visibility and wider social contribution of scientific research results.

That social science in Serbia is lagging behind in terms of science communication from international trends outlined in the introduction in all three main respects analysed in this study (i.e. peer to peer, science influencing policy and science to public) is rather unsurprising. Its methods of communicating research remain out-dated and passive to the new trends outlined in the introduction and still tend to be closed, self-referential and coveted in its too rigid and bureaucratic point-based system of evaluation. In order to achieve a better understanding of science communication modes in Serbia and identify appropriate measures for its improvement, the first section of this report will provide an overview of the current practices of science communication in Serbia. Then, three following sections will focus on three main aspects of science communication in more detail. As a final point, the final section of the report will offer concrete recommendations on the ways science communication could be further improved.

3.2 General Overview of Serbian Science

Serbian scientists can be categorized into three large groups – those working as lecturers at Higher education institutions (HEI, mostly colleges and faculties) and those working as researchers at research institutes (RI); to these, a smaller, third group of researchers working at policy centres, NGOs and various government agencies should be added. According to the first comprehensive

registry released by the Serbian Ministry of Education, Science and Technological Development in early September 2017,[64] **there are currently 17421 employed researchers financed through scientific projects by this Ministry**. Out of this number, 13455 are employed at over 80 public higher educational institutions as either lecturers or researchers,[65] 4120 at 83 accredited institutes[66] and 325 in 124 registered innovative organizations (in Serbian "*Registrovane inovativne organizacije*").[67] The majority of scientific institutions are concentrated in Belgrade, which hosts more than 60% of registered institutions, followed by Novi Sad and Niš. Out of these 83 institutes, 12 are in social science and 6 in humanities, mostly covering fields of literature, history, Serbian language, economy and politics. In addition, there are also 5 institutes of the Serbian Academy of Sciences and Arts (SANU) from the field of humanities that belong to this category as well.[68] It should be clarified that this is the first comprehensive registry and that these data, while certainly more reliable than any before, are currently being reviewed and appended.

A certain number of academic staff working as researchers at private universities or institutes, NGOs or government agencies should be added to this figure. This number is hard to establish as some private higher education institutions are unregistered[69] or have a "shady" status (i.e. it is unclear if lecturers whose CVs were used during the accreditation process are actually employed there or even if the classes are being held at all), while many of their staff have as their main affiliation positions at public universities. Given that largest private universities or faculties, such as Singidunum, Faculty of Media and Communication or John Naisbitt (better known by its former name – Megatrend) have between 100 to 150 employees listed on their websites, we could posit a tentative figure of some additional 1000 or rather 2000 lecturers and researchers in Serbia not employed by the Serbian Ministry of Education, Science and Technological Development. Therefore, a **transparent registry that will include names, affiliations and scientific results of all Serbian scientists is a necessary prerequisite** for any systematic measure in improving science in Serbia that should be established immediately. Moreover, making this registry public would enable the public to have an insight into lecturer's and researcher's overall performance, primarily publication record, and thereby possibly

[64] For more refer to http://www.mpn.gov.rs/uspostavljen-jedinstven-registar-ustanova-i-zaposlenih-sa-nastavno-naucnim-naucnim-istrazivackim-i-strucnim-zvanjima-u-dositej-u-2/.

[65] Official List of Accredited Faculties and Universities, Committee for Accreditation of Scientific Research Organizations of the Ministry of Education, Science and Technological Development, http://www.mpn.gov.rs/wp-content/uploads/2015/08/Akreditovani_fakulteti_i_univerziteti-2014_022.pdf (last accessed 15.10.2017).

[66] Official List of Accredited Institutes, Ministry of Education, Science and Technological Development, http://www.kombeg.org.rs/Slike/CeTranIRazvojTehnologija/2016/Februar/Akreditovani-instituti.pdf (last accessed 15.10.2017).

[67] For more refer to the Registry of innovation activities at http://www.mpn.gov.rs/tehnoloski-razvoj-2/inovaciona-delatnost/registar-inovacione-delatnosti/.

[68] These include the Institute for Balkan Studies, Institute for Byzantine Studies, Geographical Institute "Jovan Cvijić", Ethnographical Institute, Institute for the Serbian Language, Institute of Technical Sciences, Mathematical Institute, and the Institute of Musicology. For more details refer to: https://www.sanu.ac.rs/Clanstvo/Instituti.aspx.

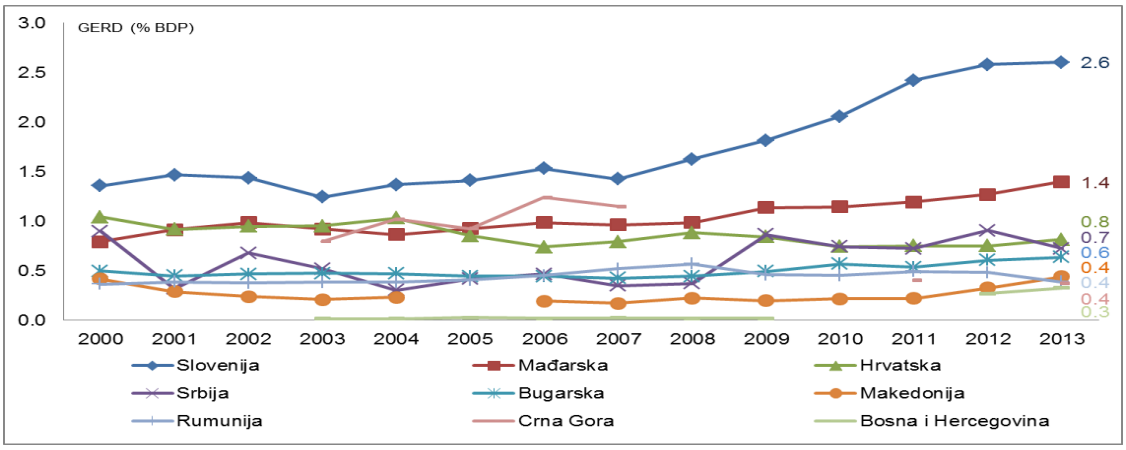
[69] That is, their programmes are not accredited by the Commission for Accreditation and Quality Assurance (KAPK), but they still employ staff, enroll students and issue diplomas which should, at least theoretically, be invalid. For instance, such is the case with Moaher Zukorlić's International University of Novi Pazar, see: http://www.novosti.rs/vesti/naslovna/drustvo/aktuelno.290.html:631636-Zukorlicu-odbijene-sve-akreditacije. In addition, in the lastest KAPK list this university has only one accredited programme. See: Vodič kroz akreditovane visokoškolske ustanove i studijske programe u Republici Srbiji, Komisija za akreditaciju i proveru kvaliteta, Beograd, septembar 2017, p. 62, https://drive.google.com/file/d/0Bwr8qEMuakSJZ0lXTURrUV96eWc/view (last accessed 10.10.2017).

prevent manipulations and speculations over one's results. In addition, this registry should also include the researchers, broadly and inclusively defined, from the civil sector.[70]

3.2.1 Low Investment in Serbian Science

Serbia's state investments in research are at a rather low level. According to Goran Bašić from the Institute of Social Sciences, Serbia allocates only 0,35% of its GDP to science directly from its state budget, which is less even in comparison to neighbouring countries, where this number stands at 1% in Croatia and Slovenia.[71] While this figure has been occasionally sited by the media,[72] another research that relied on UNESCO Institute for statistics and Work Bank showed that funding for research and innovation in Serbia from 2000 to 2013 were between 0.6 and 0.8% of the GDP, which is similar to Croatia and Bulgaria and more than in Macedonia and Bosnia and Herzegovina (less than 0.5%) and even Romania (Figure 2).[73]

Figure 2: Gross domestic expenditure on research and development (GERD) as the GDP % in Serbia and the selected countries of the region[74]



[70] At present, it is uncertain how many researchers actually work in the civil sector. The only available data show that 66 organisations founded between 2000 and 2011 listed education and research asmong their primary activities. However, given that most of them have no or few emplyees, the overall number of researcher employed in this sector should be considered to be a rather modest. For more details see: Slobodan Ocokoljić, Jelena Kleut and Bojana Radovanović, Uslovi rada i status mladih istraživača na univerzitetima, institutima i u nevladinom sektoru, Institut Ekonomskih nauka, Beograd, 2015, p. 19-20. An inclusive definition of a researcher is provided in The European Charter for Researchers from 2005, esp. p. 16, see: https://euraxess.ec.europa.eu/sites/default/files/am509774cee_en_e4.pdf.

[71] "Može li Srbija bez nauke?", Bilten za odgovorna politička rešenja, Fondacija Centar za demokratiju, No. 7, 28. jun 2016, http://www.centaronline.org/userfiles/files/publikacije/fcd-dpf-bilten-7.pdf (last accessed 20.10.2017).

[72] See http://rs.n1info.com/a243792/Sci-Tech/U-Srbiji-ne-postoji-nikakva-veza-nauke-i-drzave.html.

[73] Jelena Obradović Ćuk, Petar Mitić, and Mirjana Dimitrijević, „Značaj ulaganja u nauku – regionalna i nacionalna analiza", presented at the: XXIII skup trendovi razvoja, „Položaj visokog obrazovanja i nauke u Srbiji", http://www.trend.uns.ac.rs/stskup/trend_2017/radovi/T2.1/T2.1-3.pdf. Serbian Statistical Office gives the same figure of 0,7% to 0,8% of GDP being invested in science in Serbia, see Nacrt strategije naučnog i tehnološkog razvoja Republike Srbije za period od 2016. do 2020. godine – "Istraživanje za inovacije", Ministry of Education, Science and Technological Development, Belgrade, November 2015, p. 10, http://www.mpn.gov.rs/wp-content/uploads/2015/08/Strategija-nauka-za-inovacije-17-NOVO.pdf (last accessed 15.10.2017).

[74] Obradović Ćuk, Mitić, and Dimitrijević, „Značaj ulaganja u nauku – regionalna i nacionalna analiza", p. 2.

The problem of low investment in research has also been underlined in the European Commission's Report on Serbia for 2016, which states: "Although the country has a relatively good scientific base, the level of investment in research is less than 1% of GDP and cooperation between the public and private sector is weak and not systematically supported".[75] Although Serbian strategy of scientific and technological development set as a goal the annual increase of 0.15% of GDP for science, this figure did not change so far.[76]

Low investment in science notwithstanding, the distribution of this funding creates additional problems. Over 2/3 of the overall budget funding for science is used to finance the years-long research projects through the calls by Ministry of Education, Science and Technological Development open only to public universities and institutes; 57% goes to research salaries, while the share for material costs of researchers occupies only 3.7% of the overall funding.[77] What is more, research institutions receive these material costs with significant delays, which, in addition to low salaries,[78] has been the source of dissatisfaction and cause for complains and protests such as "Save the science" initiative.[79]

Presenting research at international conferences or going on fellowships abroad is far more difficult for Serbian lecturers and researchers. The ministry also allocates funding for these activities as well, but the application procedure is complicated, as it requires official decrees made by the applicant's institution governing bodies and up to 10 documents that need to be submitted for application.[80] Overall, the procedure is too bureaucratic and deters rather than attracts prospective applicants. Our interviewees from institutes and faculties were only vaguely aware of these opportunities, and none ever applied for this funding. A low application rate for post-doctoral funding by the Ministry is also telling – in 2016 and 2017, only 27 and 21 applications were submitted respectively.[81] Considering that the success rate was high (around 60% in 2016 and 100% in 2017) the reasons for such low interest should be sought in procedural obstacles and poor coordination and information about these opportunities. Taken altogether, Serbian lecturers and researchers are in rather unfavourable position, they have poor salaries, low or no research costs, their institutions have no autonomous budgets for conference attendance or research trips and stays; the system appears to be centralized, hierarchical and delegates an exceptionally important role to the Serbian Ministry of Education, Science and Technological Development.

---

[75] Serbia 2016 Report, European Commission, p. 31, available at: https://ec.europa.eu/neighbourhood-enlargement/sites/near/files/pdf/key_documents/2016/20161109_report_serbia.pdf (last accessed 26.7.2017).

[76] Obradović Ćuk, Mitić, and Dimitrijević, „Značaj ulaganja u nauku – regionalna i nacionalna analiza", p. 3.

[77] Nacrt strategije naučnog i tehnološkog razvoja Republike Srbije za period od 2016. do 2020. godine, p. 10, http://www.mpn.gov.rs/wp-content/uploads/2015/08/Strategija-nauka-za-inovacije-17-NOVO.pdf.

[78] In Croatia, average salary of a scientist is just over 1000 euros per month (http://www.poslovni.hr/komentari/place-znanstvenika-prosjecno-10100-kn-bruto-61287), whereas in Serbia the average one is around 500 euros (http://www.infoplate.rs/plata/obrazovanje-naucni-i-istrazivacki-rad/naucno-istrazivacki-radnik).According to correspondents from Albania and Macedonia, salaries in these countries are at a similar level as in Serbia.

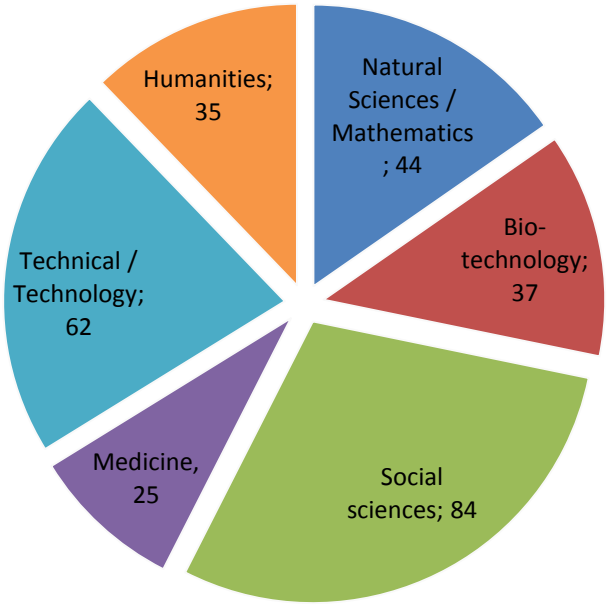
[79] For more details on the initiative, see: http://nauka.rs/spasimo-nauku-u-srbiji.

[80] For more details, see the official Ministry's annual public call for co-funding scientific activities „Javni poziv za učešće u sredstvima ministarstva peosvete, nauke i tehnološkog razvoja u 2017. godini", esp. points 7 and 8, http://www.mpn.gov.rs/javni-poziv-za-ucesce-u-sredstvima-ministarstva-prosvete-nauke-i-tehnoloskog-razvoja-u-2017-godini/.

[81] For more details on post-doctorate scholarships, see: http://www.mpn.gov.rs/stipendije-za-postdoktorante/.

The Ministry is also in charge of issuing a new project call every four years, which does not function in practice. For instance, Serbian researchers are currently being employed on a 2011-2014 project cycle. According to a recent study, the Ministry currently finances 307 projects altogether, out of which 84 in social sciences and 35 in humanities (Figure 3).

Figure 3: Participants of the 2011-2014 (extended to the present) project cycle; according to the study of the Institute of Economic Sciences[82]



As the Ministry failed to issue the new call on time, this cycle has since been extended for additional 6 months on and on for the third year in a role, amid complaints from the research community, and the new call is currently being awaited. Previous calls could hardly be described as competitive, as last call from 2011 was open only to public universities and research institutes. Even though the Ministry reported that the ranking has been made according to the individual evaluation of researchers, the overall success rate of 89% shows that practically all those who satisfied the formal criteria received funding and hence it did not serve its purpose.[83]

[82] "Analytical Support for EU Accession Negotiations & the role of research community", Institute of Economic Sciences, 2017.

[83] For more details, see the final ranking list of projects at: http://e-science.amres.ac.rs/TP36035/?p=39.

3.3 Peer to Peer Scientific Communication in Serbia: Challenges of Academic Publishing and of the Point Based System of Evaluation

The point-based system is the key method applied in evaluating scientific work in Serbia today. This system requires that academics achieve certain quantifiable results set by the Ministry, calculated as points that lecturers/researchers receive for their academic publications such as journal articles, book and book chapters, and to a lesser degree for writing book reviews, editing volumes and journals, and participating at conferences. Both research institutes and universities apply similar indicators, but the latter have more autonomy in defining these and essentially have slightly lighter criteria for academic progress in terms of publications number and quality in comparison to researchers, which is, of course, in principle appropriate given their additional teaching load.[84] Nevertheless, most university lecturers are also employed at the Ministry's research projects with additional 30% contracts, and hence basically depend on the same criteria set by the Ministry.

3.3.1 What Counts as an Academic Publication?

Present Serbian system of evaluation, as prescribed by a by-law and updated annually,[85] almost exclusively values – that is, awards points – to peer to peer scientific communication, i.e. to scientific articles, books and book chapters. Other forms of scientific communication, such as newspaper articles and media appearances, blog entries or new forms of communication through social networks, remain unrecognized, with partial exception of policy papers. This will be addressed in detail in sections 2 and 3.

In practical terms, this means that a lecturer or researcher in Serbia needs to publish a certain number of articles, book chapters and books in order to progress in his/her academic career. These results are calculated on the basis of the so called preferential lists, that is, WoS and JCR as it derivate, Scopus/*SCImago* and A&H CI, and Serbian citation index for Serbian publications.[86] The results are divided into several categories; M10 for international books and book chapters, M20 for articles published in international journals, M30 for conferences, M40 for Serbian books and book chapters and so on. Depending on the quality, these publications can bring from 14 points for a book published abroad, 5 to 7 points for an international article, up to 9 points for a monograph in Serbian, to 1-3 points for various results such as articles published in Serbian journals, editing a volume, having conference paper published in the proceedings[87] and the like (Figure 4). Some points

[84] See, for example, the criteria employed by the University of Belgrade: http://www.bg.ac.rs/files/sr/univerzitet/univ-propisi/KriterijumiZaSticanjeZvanja.pdf. Other universities, notably private ones, usually apply similar or slightly lighter criteria.

[85] Pravilnik o postupku, načinu vrednovanja i kvantitativnom iskazivanju naučnoistraživačkih rezultata istraživača, Official Gazette of the Republic of Serbia, No 24/2016 and 21/2017, http://www.mpn.gov.rs/wp-content/uploads/2017/03/Pravilnik-2017-preciscen-tekst.pdf.

[86] For more details, see: Pero Šipka, "Internacionalizacija i evaluacija kao izazovi srpske humanistike", u: A. Kostić (Ur.) Nauka: stanje, strategija, perspektive (str. 309-329), SANU, Beograd, 2016, p.310. http://www.ceon.rs/pdf/humanistika.pdf.

[87] One apparent paradox here is that the participation at international conferences is not valued at all as such, but brings points only if presented papers are published as abstracts (0.5 points) or in full (1 point). Since the same amount of points

are also awarded for translations, art awards or registered patents, but these apply to researchers outside of the humanities and social sciences.

Table 5: Point-based system for the evaluation of scientific work in Serbia[88]

CATEGORY NUMBER	PUBLICATION TYPE	POINTS AWARDED
M10	International monographs and edited volumes	M11 – distinguished international monograph – 14 points M12 – international monograph – 10 points M13 – chapter in a distinguished international edited volume – 7 points M14 – chapter in an international edited volume – 5 points M17/M18 – editing an international edited volume – 2-3 points
M20	Articles published in international journals	M21a, M21, M22, M23 – articles in the top, distinguished or international journals – 10-4 points M24 – articles in Serbian journals evaluated specially by the Ministry – 4 points
M30	Conference proceedings	M31-M36 international or Serbian conference papers published in full, in abstracts or editing proceedings – 3, 5 to 0.5 points
M40	National monographs	M41-M43 – distinguished Serbian monographs or Serbian monographs – 9-5 points M44-M45 – chapter in Serbian edited volume – 3 to 0 1,5 points
M50	Articles published in national journals	M53-M51 – articles published in top, medium or low ranked Serbian journals – 3 to 1 point
M70	PhD defended	M70 – successfully defended PhD – 6 points

applies to papers from international and national conferences, this effectively means that it is more beneficial to present at national conferences where conference proceedings are published in full, than to prestigious international conferences that are followed only by a book of abstracts. Moreover, books of abstracts without the ISBN bring no points at all. The similar situation applies to invited lectures as well – unless these are unpublished in full or in part, even lectures given at Columbia or Cambridge, bring no points whatsoever.

[88] Modified from The rule-book for the evaluation of scientific research, see: Pravilnik o postupku, načinu vrednovanja i kvantitativnom iskazivanju naučnoistraživačkih rezultata istraživača, pp. 38-42.

M120	Policy research	M121-M124 – policy research adopted by the Government agencies and accepted by the teaching/research – 3-1 point

3.3.2 Peer to Peer Publications as a prerequisite for academic progress

Predictably, researchers receive scientific rank by an accredited research institution, while lecturers are chosen by the higher education ones. Once elected into an academic rank, a lecturer/researcher holds this rank for 5 years, after which s/he can apply for a higher rank, or for the re-confirmation of the current status in case that they did not meet the criteria set for the progress into a higher rank. To be elected as researchers (a scientific rank roughly equivalent of lecturer or assistant professors), candidates need to have at least 16 points, while to progress to a rank of research fellows ("viši naučni saradnik") and principal research fellows ("naučni savetnik") they need 50 and 70 points more respectively, gained during the last 5-year period. Lecturers have somewhat different standards set, where it is important to have at least some highly ranked publications, and require more information about the candidate's qualitative results related to teaching and mentoring work.[89] There are also additional requirements for scientific progress, and these are stricter as one progress in rank. This way, one cannot simply progress by only appearing at conferences or publishing articles in national conference proceedings, but also needs to have published monographs, articles in internationally recognized journals and to have a certain number of citations. There are also qualitative requirements that apply to the candidate's general academic performance, such as mentoring work, promotion of science, memberships in boards and committees and the like. Yet, these bring no points but are exemplified by the candidate in his/her application in a narrative form.

In theory, the point-based system has been designed to provide a solid foundation for an impartial and accurate evaluation of academic work in Serbia, and to promote and award excellence. For one thing, it appears to stimulate academics to publish internationally, as the ministry clearly favours highest results achieved in prestigious international journals and publishing houses. For example, an article in highest ranked international journals brings more points (10) than a whole book published in Serbian (between 7 and 9).

In addition, lecturers and researchers can progress to a higher rank before the five-year cycle; they can apply for progress after three years, if their results during this three-year period were at least 50% higher than the minimal standards set by the rule-book.[90] The only difference is that lecturers apply for progress at their Faculties and are then verified at their university level, while researchers are firstly promoted at their research institutions, and then that decision requires verification of their Registry scientific board and the Committee for scientific rank ("Komisija za sticanje naučnih zvanja"). One problem during this final verification is uncertainty that it involves. For instance, the researchers

[89] For more details, see the Rules on the way and procedure for acquiring the titles and employing the lecturers of the University of Belgrade: Pravilnik o načinu i postupku sticanja zvanja i zasnivanja radnog odnosa nastavnika Univerziteta u Beogradu, Univerzitet u Beogradu, Beograd, 13.5.2008, https://bg.ac.rs/files/sr/univerzitet/univ-propisi/Pravilnik_o_izboru_u_zvanja.pdf.

[90] For more details, see Article 34 of the Rulebook: Pravilnik o postupku, načinu vrednovanja i kvantitativnom iskazivanju naučnoistraživačkih rezultata istraživača, pp. 10-11.

in humanities and social sciences typically wait for the Registry board and committee to meet and discuss their promotion for at least 6, and usually 12 months. Yet another issue is that during this process of promotion researchers often have their points deduced during annual evaluation and procedure for promotion into higher ranking. Namely, researcher's points are first calculated within their respective institutions; these are then discussed and verified by Register scientific board and finally by the Ministry's Committee. As a rule, in the final calculation the overall number of points recognized is significantly lower than the original proposal.[91] The procedure at universities, and especially faculties as first instances where promotion of lecturers is discussed, is somewhat even more challenging. Unlike in the case of Registry boards and Ministry's committees, where personal relation of applicants and members is unlikely, younger lecturers' promotion at faculties, *mutatis mutandis*, depends on the willingness of their colleagues. Thus, even in cases where all formal, qualitative and quantitative requirements were met, older colleagues have means to block or obstruct the promotion.[92] While the hierarchical relations at faculties and universities cannot be easily handled, in research community Registry board meeting need to be more frequent and calculation of points need to be clear, publicly accessible as researchers need to know in advance the evaluation criteria. Again, making research database publicly accessible would enable the researchers and public to get a better understanding of what and how much exactly is valued.

3.3.3 Dysfunctional Performance Based Classification into Pay Grades

Secondly, based on their performance, the Ministry classifies researchers into 6 categories (from A1 to A6), whereby the best performing researchers earn up to twice as much than the lowest performing ones (i.e. ≈ 80.000 RSD compared to 40.000 RSD on average).[93] Another problem here is that the categorization of researchers was designed to be annual, but that actually the one conducted in 2011 remains the last one. This means that even if a researcher showed excellent results in the last 6 years, s/he is still categorized, valued and paid according to the 2011 categorization. Clearly, **without being regularly updated, this categorization into research categories and thereby into pay grades has no purpose and creates no incentives for researchers to publish more and continuously improve their performance**.

[91] We have consulted 5 researchers from the field of political sciences, social sciences and humanities who had their ranks promoted in the last two years. All of them got their points deduced, at the rate ranging from 10% and up to 25%. According to the secretary of the Institute for Philosophy and Social Theory, it is more likely that the Ministry's Committees – comprising members of various disciplines, deduced these points then Registry scientific boards, which has colleagues from the same field. However, it is indicative that even researchers and administrative staff working at research institutes for years and decades are unsure of who and under which grounds calculates and deduces these points.

[92] In one representative case that reached the Serbian media, Dušan Pavlović has been repeatedly prevented from advancing to the rank of full professor by a group of colleagues who repeatedly refused to attend the sessions of the Facutly's board, thereby disabling any decision due to the lack of quorum. For more details, see the interview with Mr. Pavlović, „Dušan Pavlović: Grupa profesora opstruira moj izbor na FPN-u", Blic, 24.10.2015. http://www.blic.rs/vesti/drustvo/dusan-pavlovic-grupa-profesora-opstruira-moj-izbor-na-fpn-u/v1sp9r5.

[93] For more details, see: http://apv-visokoobrazovanje.vojvodina.gov.rs/wp-content/uploads/2016/10/KategorijeKratkorocni2016.pdf.

3.3.4 The Overestimation of Serbian Journals in Social Sciences and Humanities

Finally, as a number of academics argued, **the point-based system is particularly ill suited for humanities and social sciences, where using impact factor is unreliable and deceiving**.[94] The ministry responded to these complaints by allowing for significant qualitative input on the part of research community through their Registry scientific board ("Matični naučni odbor"). These boards have up to 10 members as representatives of the researchers for the ministry, all of which need to occupy senior positions and highest research and/or teaching ranks. They give proposals for the point evaluation of certain journals and can decide to award certain number of points for an article in a journal that is not on the list. According to Pero Šipka, this evaluation has been made arbitrarily and without justification in bibliometric results.[95] One practical result was that these boards introduced the category of M24 for Serbian journals that are not on international lists such as WoS or Scopus, but are recognized and valued as international ones in the Rule-book and publishing an article there brings 4 points. In distinction, reputable international academic journals that are not on preferential lists are typically awarded only 1-2 points by the board. In addition, since outstanding and top academic journals are both defined by their rank in the JCR,[96] publishing in prestigious international academic journals that have no impact factor would bring not 10 or 8, but only 5 points, i.e. only 1 point more than in Serbian journals from M24 category.

Promoting excellence by re-evaluating the performance criteria of academic publishing

Putting aside a rather difficult question if the point based system is altogether realistic and if it can provide accurate methods for evaluating the performance of academics from the field of social science and humanities, **the result of the present point-based system of evaluation of scientific work is that it fails to promote excellence**. While it could be argued that it somewhat pushed the lowest performing researchers and lecturers to publish *something* at least, it hardly motivates and awards those that actually do make an effort and achieve exceptional results. *So far, lecturers and researchers were able to satisfy the requirements and hence progress even to the highest teaching and research rank by publishing solely in national journals and in Serbian language (M24 and M51-53 journal category in Figure 4).* Younger researchers that were interviewed[97] univocally responded that they aspire to publish internationally for the sake of prestige, reaching wider audience and improving themselves professionally, and that publishing in overrated Serbian journals would be a much easier option. Pero Šipka, one of the strongest advocates of the bibliometric evaluation, in a recent article

[94] See: Aleksandar Stević, „Nekoliko crtica o amaterskom pravilniku", Pešanik, 5.3.2016., http://pescanik.net/nekoliko-crtica-o-amaterskom-pravilniku/. See also accusation for the "Americanization" of Serbian science: „Da li se uspostavlja američki monopol nad srpskom naukom", Politika, 19.2.2016, http://www.politika.rs/sr/clanak/349545/Da-li-se-uspostavlja-americki-monopol-nad-srpskom-naukom and „Devet instituta protiv amerikanizacije srpske nauke", Politika, 22.2.2016. http://www.politika.rs/sr/clanak/349723/Devet-instituta-protiv-amerikanizacije-srpske-nauke. Also: Luka Breneselović, „Tri priloga raspravi o bodovanju i oceni naučnog rada", https://cedulje.wordpress.com/2016/04/06/tri-priloga-raspravi-o-bodovanju-i-oceni-naucnog-rada/.

[95] Šipka, Internacionalizacija i evaluacija kao izazovi srpske humanistike, , p. 310.

[96] Pravilnik o postupku, načinu vrednovanja i kvantitativnom iskazivanju naučnoistraživačkih rezultata istraživača, p. 24, http://www.mpn.gov.rs/wp-content/uploads/2017/03/Pravilnik-2017-preciscen-tekst.pdf.

[97] In-depth interviews with researchers, September 2017.

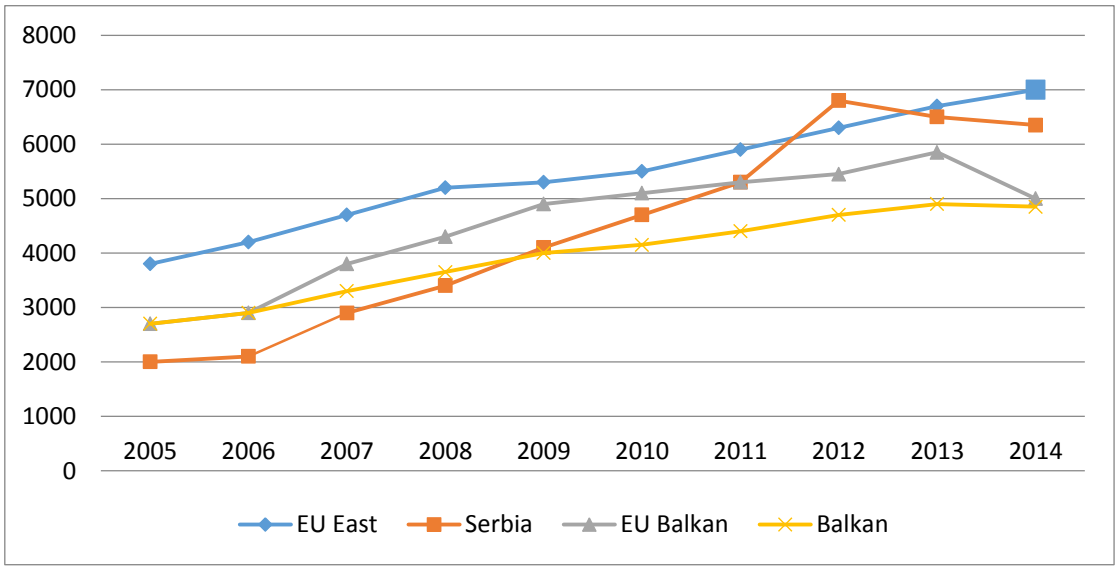
admits that a significant number of younger researchers "has international potential, but inadequate motivation" to publish in prestigious international journals.[98]

3.3.5 How much and where do Serbian Scientists Publish: Quantity vs Quality

Recent analyses of scientific performance of humanities and social sciences go in line with the aforementioned conclusion by indicating that there is an increase in quantity of production, but not in the overall quality of scientific papers in Serbia.

Pero Šipka analysed the overall performance of Serbian Science from 2005 to 2014 and concluded that in that period Serbian publications in WoS rose dramatically from around 2000 to 7000 per year, and that Serbia came close to 1 article in WoS per 1000 inhabitants, thus outperforming not only Balkan countries, but Czech Republic and Poland as well.[99] Furthermore, even though Serbian social scientists published in WoS five times less than their Western colleagues, their performance was still equal or slightly behind their colleagues from East and Southeast Europe (Figure 4).

Figure 4: Serbian scientific productivity given according to the number of WoS articles[100]

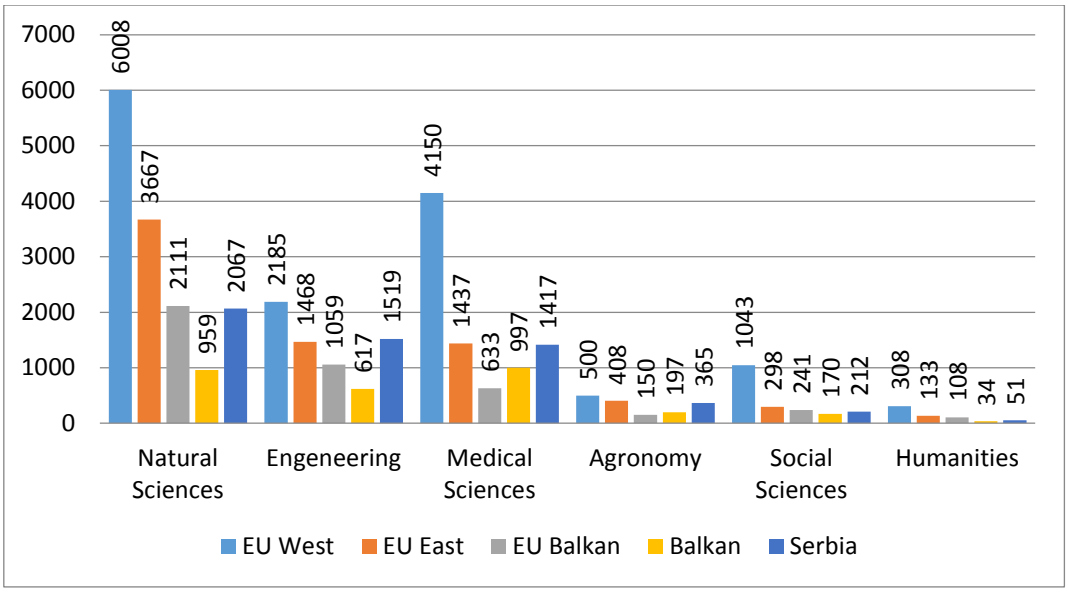


However, the performance of Serbian academics from the field of humanities in WoS is significantly weaker: it is only slightly above that of the countries like Albania, Macedonia and Bosnia and

[98] Šipka, „Internacionalizacija i evaluacija kao izazovi srpske humanistike", p. 326.
[99] See, for instance: Pero Šipka, "Deset godina naglog rasta srpske naučne produkcije: Ali šta je s njenim kvalitetom?" in: A. Kostić, (Ur.), Nauka: stanje, strategija, perspektive (str. 33-62), SANU, Beograd, 2016, pp. 40-41. http://www.ceon.rs/pdf/deset_godina.pdf.
[100] Source: Šipka, „Internacionalizacija i evaluacija kao izazovi srpske humanistike", p. 311.

Herzegovina, and twice lower than that of their colleagues from the neighbouring EU countries (Romania, Bulgaria and Croatia) (Figure 5).

Figure 5: Number of articles published in WoS per 1000 inhabitants according to scientific areas[101]



As in Albania and other Western Balkan countries, it appears that the knowledge generated about Serbia in high quality journals is mostly done by foreign scholars. Thus, one survey showed that even authors from Slovenia and Croatia publish more about Serbia in prestigious academic journals than Serbian academics.[102] Moreover, a search of key words related to Serbia through *Scopus* showed that it is usually associated with words with negative connotation, such as war, violence, nationalism, political conflicts, International tribunal and the like).[103]

In general, Serbian authors from the field of humanities lack motivation to publish in prestigious international journals as they can for the most part achieve the required results by publishing in Serbian journals.[104] In light of the aforementioned problems, increasing the quality of Serbian academic publications would be the best strategy to meet both the ministry's demand for publishing in internationally recognized journals and to improve the overall quality of peer to peer communication of science in Serbia in the field of social sciences and humanities.

3.3.5.1 Attracting EU Research Funding

Serbia does comparatively well in terms of attracting funding from EU research programmes in comparison to other Western Balkan countries in general (Albania, B/H, Macedonia, Kosovo and Montenegro), and Albania in particular. By February 2017, out of the total of 1906 application 1161

[101] Source: Šipka, „Deset godina naglog rasta srpske naučne produkcije" , p. 55.
[102] Šipka, „Internacionalizacija i evaluacija kao izazovi srpske humanistike",, p. 319.
[103] Ibid.
[104] Šipka, "Internacionalizacija i evaluacija kao izazovi srpske humanistike", , p. 313. By analogy, Serbian scholars are not motivated to publish their books, book chapters and edited volumes either; however, the information about such publication are unavailable at present.

were from Serbia, with 91 out of 150 successful application. While Serbian success rate of 9% was similar or even lower than in other countries (with notable exception of Albania), in terms of funding Serbia attracted 30 out of the total of 37 million euros (see Table 6 and Table 7 below). In addition, between 2007 and 2013, Serbia has been ranked 4th in attracting EU funding for FP7 among all the candidate and associate countries, after Israel, Switzerland and Norway, with success rate above 15%.[105]

Table 6: Success Rate of Western Balkans in H2020, Feb 2017[106]

	Albania	B/H	Macedonia	Kosova	Montenegro	Serbia	Total
Applications	140	176	286	44	99	1161	1906
Eligible applications	125	152	256	41	88	1006	1665
Successful/awarded applications	6	14	27	6	7	91	150
% of success rate	4.80%	9.215	10.55%	14.63%	7.95%	9.05%	9.35%

Table 7: Financial resources awarded by H2020 for Western Balkans in total, Feb 2017

	Albania	BH	Macedonia	Kosova	Montenegro	Serbia	Total
Applicants	12	23	32	9	14	182	272
Awarded projects	10	18	28	8	9	127	200
Sum awarded in Euro	1,5	2,5	2,1	0,7	0,3	29,9	37

3.3.5.2 Books and Book chapters

Publishing monographs and book chapters in Serbia is generally not a major problem, but it also has its challenges. In general, criteria for book publishing are light, as most faculties and institutes

[105] See: Seventh FP7 Monitoring Report, European Commission, Directorate-General for Research and Innovation, Publications Office of the European Union, Luxembourg, 2015, pp. 22-23. https://ec.europa.eu/research/evaluations/pdf/archive/fp7_monitoring_reports/7th_fp7_monitoring_report.pdf#view=fit&pagemode=none.

[106] Source: NASRI & EU Delegation, Albania 2017.

traditionally have their own book series and editions. Thus, for instance, while Serbian academics are not formally required to publish their PhD (youngers scholars are awarded 6 points for defending their PhD thesis regardless of if it is published or not), many chose to do so. University lecturers are in a better position here, as their faculties usually have some additional sources of funding apart from the Ministry (from renting their space, selling textbooks, charging students' tuition fees and administrative costs etc.) and are prone to use it to finance publications. Serbian lecturers and researchers are here in unfavourable position insofar as their higher education or research institutions have no separate funding for these activities. Hence, both institutions and individuals need to apply additionally for that through the Ministry's annual calls.[107] To be recognized as academic publications, and thus funded by the Ministry, these books need to have two reputable reviewers, but in actuality these reviews do not go into details nor make any demands in terms of content, but rather serve as recommendations for publication. On the upside, researchers and lecturers are usually approved such co-financing to publish their books by Serbian publishing houses, provided that there are not too many funding requests from the same institution. They can apply twice a year for this funding through an open call, and the Ministry usually approves 2 or 3 books per institution per call. This funding applies for printing costs for up to 1000 euros and is paid directly to the publisher.[108] This is no doubt a good measure; as many Serbian faculties and institutes still often publish books in their own editions that are not distributed to bookstores or sold (or, rather, given away) anywhere apart from the faculty's or institute's premises, it secures at least some public outreach and wider circulation of these books. The challenge here is that the number of publishers interested in publishing academic book is rather modest, since they hardly bring any commercial value on the Serbian book market. Another downside is that at present there is **no possibility to allocate this co-funding by the Ministry to foreign publishing houses**, which would provide even more incentives for academics to publish their monographs and edited volumes abroad. Such funding would be valuable in both Germanic speaking regions, where publishers usually charge for book publications, and Anglo-Saxon ones where there are no printing costs, but where it could be used for proofreading, making an index or the like.

Finally, the situation in terms of evaluation of book and book chapters is even more complicated and uncertain here if compared to the evaluation of articles. As there are no preferential lists to cover this area at all, it is up to the Registry boards and Ministry's committees to decide how many points to give to these. Here, space for subjective evaluation is even greater, for with a sympathetic evaluator even edited volume in Serbian with one or several contributors from the region can be labelled as being of international value and hence bring more points than an article published in a reputable international journal.

[107] For more details, see the official Ministry's annual public call for co-funding scientific activities „Javni poziv za učešće u sredstvima ministarstva peosvete, nauke i tehnološkog razvoja u 2017. godini, http://www.mpn.gov.rs/javni-poziv-za-ucesce-u-sredstvima-ministarstva-prosvete-nauke-i-tehnoloskog-razvoja-u-2017-godini/.

[108] See the second public call published by the Ministry, "Drugi javni poziv za učešće u sredstvima Ministarstva za sufinansiranje izdavanja monografija u Republici Srbiji u 2017. godini", Ministarstvo prosvete, nauke i tehnološkog razvoja, http://www.mpn.gov.rs/wp-content/uploads/2015/09/Drugi-javni-poziv-za-sufinansiranje-monografija-u-2017.-godini.pdf.

3.3.5.3 Serbian Scientific Journals and the International Preferential Lists

The latest Thomson Routers' Web of Science list from May 2017 shows that Serbia is still lagging behind the neighbouring EU countries; their SSCI list contains 7 Slovenian journals, 8 Croatian journals and only 2 Serbian ones (*Panoeconomicus*, published by Savez ekonomista Vojvodine and *Psihologija* published by Savez psihologa Srbije).[109] Likewise, the latest AHCI list contains 6 Slovenian journals, 12 Croatian journals and only 1 Serbian journal in the field of humanities (*Zograf*, published by the Faculty of Philosophy and dedicated to medieval art). Overall, 23 journals published in Serbia were indexed in SCI, SSCI and AHCI and 68 journals were indexed in Scopus (including discontinued journals), which is a moderate increase compared to last year (Table 8).[110]

Table 8: The number of journals from the SEE countries on the preferential lists on 12.03.2016

	Web of Science	**Scopus**				**ERIH**	**Scholarly Open Access**
TOTAL	*Total*	*Total*	*Naturan Sciences*	*Social Sciences*	*Humanities*		
Albania	-	-	-	-	-	3	-
BiH	4	12	11	1	-	3	4
Bulgaria	19	44	39	4	1	30	
Montenegro	-	-	-	-	-	3	-
Greece	19	66	53	8	5	36	-
Croatia	61	140	75	35	30	81	-
Cyprus	-	2	-	2	-	5	-
Hungary	38	97	58	16	23	91	-
Macedonia	2	7	6	1	-	5	-
Moldova	-	3	2	-	1	4	-
Romania	62	157	95	28	34	153	6
Slovenia	28	54	19	18	17	58	
Serbia	23	53	40	10	3	29	2
Turkey	73	179	141	27	11	45	5

[109] See: Source Publication List for Web of Science. Science Citation Index Expanded., Clarivate Analytics, Updated July 2017, http://ip-science.thomsonreuters.com/mjl/publist_ssci.pdf.

[110] See: Source Publication List for Web of Science, http://ip-science.thomsonreuters.com/mjl/publist_ah.pdf. Overall, the total of 62 Croatian academic journals have been included in the Web of Science by 2013, 28 of them being from the H and SS field. At the same time, the Scopus database included 120 Croatian journals from all fields and 47 from H and SS alone.

3.3.5.4 Why more Serbian Journals are not on Preferential Lists?

A comprehensive recent study of Serbian academic publishing showed that "it is generally believed in Serbia that it is very difficult (and even impossible for journals published in Serbian, especially in humanities) to meet the requirements for inclusion in these indexes".[111] However, their research, which included 236 respondents out of some 510 scientific journals in Serbia altogether, most of which are publicly funded, showed that actually 2/3 of Serbian journals in the field of social sciences and humanities never tried to apply to be included in Web of Science or Scopus.[112] The success rate of those that did apply was respectable, ranging from around 30% for WoS application, to over 50% for Scopus. Furthermore, this success rate rose rather dramatically for journals that applied for membership more than once.[113]

In order to get a better understanding of such poor application rate among Serbian journals, we conducted interviews with the national coordinator for the EIFL consortium, as well as representatives from CEON, an agency that conducts bibliometric analyses of journals and academic performance for the Ministry of Education, Science and Technological Development, and Institute for Philosophy and Social Theory, who coordinated the unsuccessful application process of his Institute's journal *Filozofija i društvo* in 2014 (in their second attempt, *Filozofija i društvo* got accepted to the WoS Emerging Sources Citation Index[114]). The interviewees expressed their views that fulfilling formal criteria and technical standards was often the first obstacle in the application process, and that the vast majority of journal editors in Serbia are unaware of these standards. In addition, they expressed their belief that, while most Serbian journals at present cannot meet high international standard and requirements in terms of citation, international editorial board and quality of publications, but that there are dozens of those who could perhaps meet these demands with adequate technical, financial and logistical assistance.

Not even the data for all publicly funded journals are available. The Digital repository of the National Library of Serbia, which should be considered to be the most exhaustive list available, contains as many as 809 titles of scientific journals in Serbia, out of which, according to our calculation, 478 are in social sciences and humanities. However, this list apparently contains all or at least most of all journals that were published from the early 1960s onwards, while the total number of current academic journals is given as 510. Yet, even some of these journals appear to be irregular or inactive.[115] Most of these journals exist in the electronic form – the consortium of Serbian library

[111] Milica Ševkušić, Zorica Janković and Aleksandra Kužet, Open Access Journals in Serbia: Policies and Practices, National Library of Serbia, Department of Scientific Information, Belgrade, 2017. http://repozitorijum.nb.rs/predavanja/9788670353824.pdf.

[112] Given that the respondents represented less than half representatives of all scientific journals in Serbia, and mostly of the better ranked ones nationally, it is likely that actually up to 80% of all journals never attempted to apply for membership on international reference lists.

[113] Ševkušić at all, Open Access Journals in Serbia, p. 112.

[114] For more details, refer to the Master Journal List of the Web of Science: http://mjl.clarivate.com/cgi-bin/jrnlst/jlresults.cgi?PC=MASTER&ISSN=0353-5738.

[115] For more details, see: Digitalni repozitoriju Narodne biblioteke Srbije, http://repozitorijum.nb.rs/.

KoBSON contains information about 393 electronic journals.[116] A respectable number of 129 Serbian journals are indexed in the Directory of Open Access Journals (DOAJ) "that indexes and provides access to high quality, open access, peer-reviewed journals" from 121 countries.[117]

Even though these data are incomplete or not fully reliable, they strongly suggest the following:

1) the total number of scholarly journals in Serbia is around 500, with at least 50% of these belonging to humanities and social sciences
2) at least 129 Serbian journals indexed in DOAJ, and most likely 234 journals indexed in the SCI, have publicly available data, peer review process and open-access policy. Over half of those journals are from social sciences and humanities.

Given the anonymous nature of peer-review process, it is hard to provide any concrete data in this respect. However, from our rather extensive experience, it is clear that over the last decade an increasing number of academic journals introduced electronic submissions and anonymous peer-review. Still, with such vast number of journals being published, it is unsurprising that editors are often struggling to find enough articles on time for publication. This shortens the peer-review process and reviewers are expected to provide short reports and thus only formally follow the procedure. Moreover, some of our correspondents mentioned that senior professors and researchers use opportunities to bypass the procedure by directly arranging the publication of their articles with the editors, especially when they need a publication fast in order to progress to a higher rank.[118] All in all, it appears that Serbia is making progress in this respect, but that the publication standards in Serbian journals are still quite low in comparison to the requirements and procedures followed by international journals, even those which are not on the prestigious reference lists such as WoS or Scopus. In any case, **the ministry should re-evaluate and condition its support, award the best journals and penalize the non-performing ones, and require for more transparency regarding peer review process.**

Re-evaluating the current number of points given to Serbian journals would also creative incentives for them to apply for international ranking. This particularly applies to revisiting the "special status" of the M24 category. For all practical purposes, classifying journals into this category by a special decree was to be a temporary measure, designed to provide them additional points for their *de facto* international status until it has been *de jure* recognized and determined. Yet, nothing much changed in this respect for a decade, and academic ranks and progress is easily made by meeting the Ministry's demands for international publications by actually publishing solely in these Serbian journals. This would certainly push these journals to make some efforts to get to WoS or Scopus. On the legal part, these measures could be enforced by adopting a new "Act on Editing Scholarly

[116] See KoBSON's list of Serbian journals available in electronic form, Spisak časopisa iz Srbije dostupnih u elektronskoj formi, http://kobson.nb.rs/nauka_u_srbiji/elektronski_casopisi_iz_srbije.95.html?service=26&offset=19.
[117] For more details, refer to Directory of Open Access Journals (DOAJ) https://doaj.org/.
[118] Professor Dušan Pavlović from the Faculty of Political Sciences and Branko Urošević from the Economic Faculty in an authored article also expressed this view that „a significant number of Serbian journals have no review process or it is of purely formal nature", see: „Tri ne – znanje, jezik i podsticaj", Vreme, 1067, June 16, 2011. http://www.vreme.com/cms/view.php?id=995996.

Journals",[119] as the current one from 2009 only briefly mentions electronic journals but sets no standards that apply to them.[120]

3.4 Science and Policy (Institutions) in Serbia

Evidence-based policy and decision-making are becoming the new norm in well-developed, functioning modern democracies. Mechanisms for including more evidence into practice, as well as factors influencing this process, have been researched by a number of authors.[121] Davis defines evidence-based as an approach that "helps people make well informed decisions about policies, programmes and project by putting the best available evidence from research at the heart of policy development and implementation".[122] **Rather than on opinions, personal views and speculation, policy-making in modern government should rely on well-informed, sound facts and high-quality evidence.** Bearing in mind the shortcomings and potential weaknesses of such an approach, sound policy-making should be based on high-quality research, with clear objectives, appropriate methodological approach, accurate/relevant statistical data and the impact assessment.[123] Moreover, it should also be properly understood and used by decision-makers in the appropriate manner.[124] Such research can be provided by various groups of actors (see Table 9), and use different types of research evidence depending on the question being posed.[125]

The academic and research community is seen as one of the key providers of such high-quality research, while the practice of commissioning such research from think-tanks, consulting firms and civil-society organisations in transition countries developed only more recently.[126] In any case, those commissioned to provide the evidence and research should be competent and meet a number of requirements, such as having the multi-method capability, presenting the research in an accessible way with a focus on the message and the implications of the research, etc. On the other hand,

[119] See: Akt o uređenju naučnih časopisa, Ministarstvo za prosvetu, nauku i tehnološki razvoj http://www.ceon.rs/pdf/akt_o_uredjivanju_casopisa.pdf.
[120] For more details, see: Ševkušić at all, Open Access Journals in Serbia, p. 14, 119-126.
[121] For instance see: Huw T.O. Davies, Sandra M. Nutley and Peter C. Smith, What Works: Evidence-based policy and practice in public services, Bristol, The Policy Press, 2000; or Sandra Nutley, Isobel Walter and Huw Davies, „From Knowing to Doing: A framework for understanding the evidence into practice agenda", Sage Journals, Vol 9, Issue 2, 2003.
[122] Philip Davies, Is Evidence-Based Government Possible? Conference Paper for the Campbell Collaboration Colloquium, Washington, February 2004, p. 3.
[123] Weimer and Vining define impact assessment as an „information-based analytical approach to assess probable cost, consequences, and side effects of planned policy instruments". See David L. Weimer and Aidan R. Vining, Policy Analysis: Concepts and Practice, Pearsons, V edition, March 2010, p. 23.
[124] For more details on shortcomings of evidence-based policy, see: Davies, Nutley and Smith, What Works, and Philip Davies, „Is Evidence-Based Government Possible?", Conference Paper for the Campbell Collaboration Colloquium, Washington, February 2004.
[125] Davies, „Is Evidence-Based Government Possible?", p. 15.
[126] Eoin Young and Lisa Quinn, Making Research Evidence Matter: A Guide to Policy Advocacy in Transition Countries, Open Society Foundations, Budapest, 2012, p. 32.

continuous training and professional development should be provided for the decision and policy-makers in order to achieve effective cooperation with the "intelligent providers".[127]

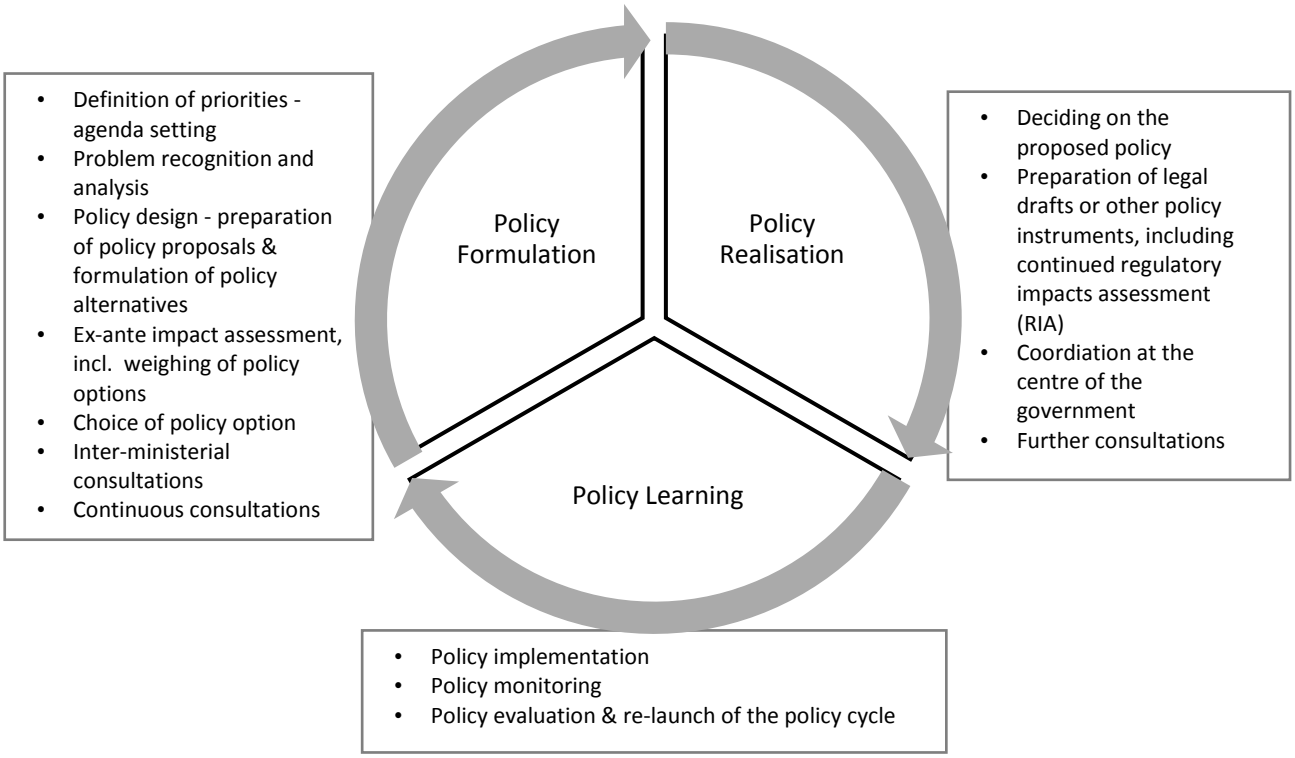
Table 9: Range of typical clients and policy researchers.[128]

CLIENTS	RESEARCHERS
Typical government clients	**In government**
• **MINISTRY, REGIONAL GOVERNMENT OR MUNICIPALITY** • **GOVERNMENT OFFICERS (FOR EXAMPLE, DEPUTY MINISTERS) AND OFFICES WITH POLICY RESPONSIBILITIES (FOR EXAMPLE, STATE SECRETARIAT)** • **PARLIAMENTARY WORKING GROUPS** • **SPECIALISED GOVERNMENT AGENCIES**	• Policy advisors, teams, or units in the executive branch • State research institutes
Typical clients from outside government	**Outside government**
• **POLITICAL PARTIES** • **INTERNATIONAL ORGANISATIONS** • **INDIVIDUAL NGOS AND COALITIONS** • **ASSOCIATIONS (BUSINESS, PROFESSIONAL, AND SO ON.)**	• Think tanks • Individual researchers/ academics • Consulting firms • University centres

Although improvements have been made, the **current Serbian legal and institutional framework is inadequate for active involvement of all relevant actors in policy-making**, including the academic and research community. Clear differentiation between different phases of the policy cycle in the overall legislative and institutional framework is lacking, in particular among the policy formulation and implementation (see Figure 6). In addition, the institutional framework faces several constraints such as the overlapping of competences among line ministries, lack of human and financial resources, required know-how as well as administrative capacities.[129]

[127] Philip Davies Is Evidence-Based Government Possible? Conference Paper for the Campbell Collaboration Colloquium, Washington, February 2004, pp. 15-18. Available online: (last accessed 1.10.2017).
[128] Source: Young & Quinn (2012), p.32.
[129] Aleksandar Bogdanović, "Think tanks in Serbia: In Pursuit of Impact", Research Forum of the European Movement in Serbia, October 2016, pp. 1-2, http://www.emins.org/uploads/useruploads/forum-it/08-PB-Think-tankENG---NET.pdf (last assessed June 1, 2017).

Figure 6: Stages of the Policy Cycle [130]



3.4.1 Institutional and Legal Framework

The elements and processes within the Serbian policy-making system are broadly regulated within the existing legislative framework, with the Government as the main actor steering the state policies. Serbian Constitution foresees that the Government shall establish and pursue policy, execute laws, adopt regulation, propose the laws and general acts to the National Assembly and direct, adjust and supervise the work of administration bodies.[131] The Law on the Government broadly stipulates that "the Government shall conduct the policy of the Republic of Serbia within the framework of the Constitution and laws of the National Assembly" (Article 2), as well as supervise and "direct the state administration authorities in implementation of policy" (Article 8).[132] However, for an effective, transparent and open process of policy-making, the Government relies on public administration as well as on the cooperation with other relevant actors. The Law on Public Administration, which defines the tasks of public administration in policy-making, has been amended in 2014 with the aim to enable the involvement of all interested actors and general public the decision-making and legislative processes, as well as to increase the quality, professionalization and accountability of

[130] Source: Milena Lazarević, Sena Marić and Amanda Orza, Policy Making and EU Accession Negotiations: getting results for Serbia, Deutche Gesellschaft fur Internationale Zusammenarbeit GIZ, Belgrade, 2013, p. 15.
[131] Constitution of the Republic of Serbia, Article 123, Official Gazette of the Republic of Serbia, no. 98/2006.
[132] Law on Government, „Official Gazette of the Republic of Serbia", no. 55/2005, 71/05-correction, 101/07, 65/08, 16/11, 68/12, 72/12, 7/14 and 44/14.

public administration in line with the principles of good governance.[133] The transparent and open legislative and policy-making processes are also foreseen by the Resolution of the National Assembly of the Republic of Serbia on legislative policy and Public Administration Reform Strategy.

In addition, Serbia is currently in the process of adopting the Law on Systemic Planning (*Zakon o planskom sistemu*), one of key legislations for the systemic and comprehensive involvement of academic and research community in policy-making. The *Draft Law on Systemic Planning* has been prepared and commented during public debate in January 2017 with participation of a number of civil society organisations and academic institutions; however, the law has not yet been adopted. This (draft) Law, supported by the Secretariat for Public Policy, aims at regulating "the systemic planning of the Republic of Serbia, i.e. the management of the system of public policies and midterm planning, the types and contents of planning documents that, in accordance with their competencies, are proposed, adopted and implemented by the participants in the planning system, as well as the mutual compliance of the planning documents".[134] Unfortunately, it failed to encompass the legislative process as well. Among the principles of governance of the public policy system, the law is designed precisely to enable the *principle of relevance and reliability*, ensure reliable data and evidence based decision making; and as well as the *principle of publicity and partnership* that implies that "during the drafting and implementation of planning documents, as well as the assessment of the effects of public policies, a transparent consultation process with all stakeholders and target groups, including associations and civil society organizations, scientific and research organizations and other organizations, and other stakeholders and target groups".[135] Moreover, in addition to obligation of consultations at all stages of the procedure, the law grants the scientific and research organizations with the right to submit an initiative for amending, drafting, and adopting a public policy document.[136] This law could significantly contribute to the evidence based decision-making and strengthening of public-private sector partnership in the process of creation and implementation of public policies and regulations. However, it remains to be seen when it will be adopted, and whether it will be consistently implemented, principally by introducing the mechanisms for the direct involvement of associations, institutes and other civil society organisations in the process of policy-making.

3.4.2 Current State of Play: Science to Policy in Practice

A number of examples of good cooperation between ministries or other state institutions and research institutes demonstrate that this existing legislative framework enables the minimum preconditions for evidence-based policy-making. The Social Inclusion and Poverty Reduction Unit of the Government of Serbia represents one of the bright examples promoting institutional transparency, cooperation with scientific and research organisations, as well as with individual and particular young researchers. Structured as a "mind-lab", this institution has been designed by the

[133] Law on Public Administration, Official Gazette of the Republic of Serbia, no. 79/2005, 101/2007 and 95/2010. For the analysis of legislation prior to the amendments, see: Lazarević, Marić and Orza, Policy Making and EU Accession Negotiations, pp. 33-39.

[134] Draft Law on Systemic Planning of the Republic of Serbia, available at: http://www.paragraf.rs/nacrti_i_predlozi/141116-nacrt_zakona_o_planskom_sistemu_republike_srbije.html (last accessed 26.7.2017).

[135] Article 3.Draft Law on Systemic Planning of the Republic of Serbia.

[136] Article 31, Draft Law on Systemic Planning of the Republic of Serbia.

government as a bridge towards research organisation. Its aim is to provide research for evidence-based policy-making in their particular field and connect the two worlds of research and policy-making. Commissioner for the Protection of Equality has as well a good track record in commissioning research projects and incorporating gained evidence in policy-making processes and comments or opinions on draft legislation.[137] However, this track record resulted more from personal characteristics and attitudes of the first Commissioner who paved the way for the establishment of such practice, than as the effect of a favourable institutional framework. As for the research institutes, one of the best-practice examples is the cooperation between the Institute of Economic Sciences and the Commission for Protection of Competition on the "Aftermarkets Sector Inquiry", in cooperation with the Public Policy Secretariat of the Republic of Serbia and with financial and technical support from the PERFORM Project.[138] The Ministry of Agriculture is often praised for their established practice of commissioning research for well-informed and evidence-based decision-making in the fields of their jurisdiction.

However, **these examples of good practice are still limited, relying predominantly on project funding provided by foreign donors and individual initiatives of some of the decision-makers**.[139] Rather than systemic and comprehensive approach of state institutions, these examples represent exceptions, lonely islands of good practice. The overall approach of state government is still un-coordinated and negligent towards the need for systemic approach and more investment in research in policy-making. Although the recent legislative developments provide a chance for increasing visibility of scientific analyses, certain obstacles have to be overcome in order to establish a more comprehensive, continuous and systemic inclusion of academic and research institutions as "intelligence providers" for evidence-based policy-making. **The obstacles to a more active communication between science and policy** can be broadly defined as threefold, including:

1. Procedural obstacles,
2. Obstacles in communication, and
3. Lack of capacities.

3.4.3 Procedural Obstacles in Science to Policy Communication

The existing **Law on Public Procurement** represents one of the most noted procedural obstacles for state institution which would like to commission the research from their own budget. Although it is not impossible to conduct a call for a research project in accordance with this law, it has been broadly criticised in regard to commissioning scientific research for placing too much focus on the quantitate aspects, i.e. on the cheapest offer, at the expense of quality of research analysis.

[137] Confirmed in an interview with the representative from the Commissioner for the Protection of Equality in charge of research. In-depth interview with policy-makers, September 2017.

[138] Highlighted among the best-practice examples by the representative from the Public Policy Secretariat of the Republic of Serbia. In-depth interview with policy-makers, September 2017. For more details on the project, see the news article on the webpage of Commission for Protection of Competition: http://www.kzk.gov.rs/en/sektorska-analiza-trzista-postprodajnih-usluga.

[139] All of the interviewed representatives from state institutions confirmed that the funding for such research projects predominantly, if not completely, came from foreign donors who recognised and supported their need for evidence-based policy-making.

Preparing the necessary documentation for the public call is the most problematic for state institution, including designing the appropriate way to assess and evaluate the offers.[140] Therefore, this law should be amended in the line with initiatives that have already been launched, in order to either exclude the research or grant them with special treatment. So far, this obstacle has been successfully avoided by state institutions which were cooperating with foreign donors and commissioning research within project funding. However, it still represents a systemic problem that should be resolved in order to provide a sustainable solution.

3.4.4 Obstacles in Communication between Relevant Actors

Efficient and effective two-way communication between the scientific community and decision-makers represents an invaluable contribution to the evidence-based policy-making. However, **common language and understanding is still lacking**, thus representing one of the main obstacles in communication between science and policy. The **clients who commission the research are often imprecise in communicating their needs and expectations** while formulating the public calls, in some cases due to the lack of know-how and understanding of policy-making processes. Furthermore, the practice of continuous communication between the client and the researcher is lacking in almost all cases, leaving **the researchers often without clear guidance or comments**, which leads to the dissatisfaction with the results from both sides.[141] According to the representative of Public Policy Secretariat, continuous communication is the best way of involving researchers in policy-making, and key factor for developing effective recommendations that can be implemented in practice. In addition, another problem highlighted by several sources is the **lack of inter-institutional and inter-sector coordination and communication**. In addition, some of the interviewees underlined that there is not enough space and focus devoted to the communication of research results in the framework of usual applications for research projects, as well as that donors do not place enough attention to this issue.[142]

3.4.5 Lack of Capacities

The lack of capacities, both on the side of decision-makers, as well as on the side of researchers, represents one of the biggest obstacles in science to policy communication. The practice of decision-making on the basis of internal agreements, without sound facts, without consultations with specialised researchers or even internal coordination with other state institutions is still widespread.[143] Drawing from existing experiences, most of the ministries still lack their own analytical units, as well as the perception that they should be actively involved in strengthening internal capacities for analytics and research. Interviewees from state institutions with experience in collaboration with scientific and researcher community consistently underlined the lack of high-

[140] Confirmed through the interview in the Public Policy Secretariat and Ministry of European Integration. In-depth interview with policy-makers, September 2017.
[141] Underlined by the representative of Public Policy Secretariat. In-depth interview with policy-makers, September 2017.
[142] In-depth interview with a researcher, September 2017.
[143] Confirmed through interviews with policymakers in relevant state institutions. In-depth interview with policy-makers, September 2017.

quality expert community within state institutions as one of crucial problems, as there is no expert level in state institutions in addition to the existing political and executive level.[144] One of the proposition stated in the interview with representatives of SIPRU as a step forward would include changes in staff on higher positions in state institutions, for instance at the level of advisor or senior advisor to the ministries, with personality profiles that understand and appreciate the need for research, who are keen to promote the role of research in policy and could keep up with the direction of reforms, communicate with the political level and improve appreciation of research. Here the comprehensive educational role of the Public Policy Secretariat of the Republic of Serbia on providing training for the public administration should be mentioned. The Public Policy Secretariat is continuously providing various types of trainings for representatives of public administration on different levels, with the aim to strengthen their analytical basis in decision-making. According to an interviewee from the Secretariat, although there is a need for evidence-based decision-making, at the same time in a significant number of cases it is not recognised and implemented in practice.[145]

On the other hand, there is also room **for improving the capacity of the research community, in order to ensure appropriate and high-quality research, tailor-made in line with the needs of policy-making process**. Several interviewees have underlined the need for a clear distinction between consultants and researchers, referring to the problem of superficial analyses conducted by consultants that are not in line with required scientific research methodology, nor provide enough evidence.[146] Scientific institutions and research institutes are mostly seen as competitive on Serbian scientific market, in some views even privileged in comparison to independent think tanks and other research organisation, which unlike the institutes do not enjoy a secure income from state funding. A recent study that EMinS conducted showed rising contribution of think tanks to policy making process in Serbia, despite still underdeveloped practice of cooperation with think tanks.[147] This could be explained in line with the tendency of think tanks to pursue specialisation in managing policy cycles rather than in given subjects, in the context of small sized and underdeveloped policy markets.[148] On the other hand, academic and research community predominantly expects the State and Government to take the initial step, include them and motivate them to take part in the policy-making process.[149] Along these lines, it could be concluded that **scientific and research institutions could benefit from the experience and know-how of think tanks and civil society organisations** that are actively involved in policy-making and advocacy processes, and from which most of policy-relevant research is coming, in regard to their strategies of communicating research outputs.[150]

---

[144] Confirmed through in-depth interviews with policy-makers, experts and representatives of official institutions, including the Ministry for Education, Science and Technological Development of Serbia; SIPRU; and the Public Policy Secretariate of Serbia.

[145] In-depth interview with policy-makers, September 2017.

[146] Interviews in Pulic Policy Secretariat and Ministry of European Integrations.

[147] Bogdanović, "Think tanks in Serbia: In Pursuit of Impact", pp. 1-11.

[148] „By properly managing entire policy cycles, these centers succeeded to squeeze the best and most constructive knowledge from individual experts, mediate it with the policy makers and finally instigate policy changes". Goran Budiloski, „Some Musing on Development of Independent Policy Making and Think Tanking in Central and Eastern Europe", National Security & Defence, No. 6, 2007, p. 51

[149] Stated as one of the major conclusions of the focus group "The role of researchers in analytical support" , conducted June 2017 in framework of the study "Analytical Support for EU Accession Negotiations & the role of research community" prepared by Institute of Economic Sciences.

[150] One of the interviewees elaborated on the ways that the know-how of think-tanks and NGOs could be transferred to research institution in order to enhance their communication with policy-makers and public, particularly highlighting the

3.5 Science and the Public in Serbia

Scientific research is and should be serving to the benefit of wider society, contributing to the community and public interest, while the scientists are increasingly seen as responsible for communicating science to public.[151] Researchers are nevertheless predominantly focusing their energy on peer-to-peer communication within the scientific and research community. However, albeit often outdated, subjects such as *The methodology of scientific work* offer at least some training in academic writing; in distinction, *the practice of communication between scientists and general public is still rather underdeveloped, and the incentives promoting such communication are still modest, if not altogether absent*.

At present, **Serbian academics have no incentives nor encouragements for publishing newspaper articles, blog entries, taking part in public debates or the like. Secondly, the dissemination component has not been prescribed as mandatory by any of the project calls so far**. While it is technically possible to measure academics' public impact and award them points for that by quantitatively assess academic's public outreach,[152] this would certainly be challenging in terms of how to accurately do so, how to select media outlets that deserve recognition and distinguish between general public appearances from those of scholarly nature etc. Thus, it would be better to create other incentives of a more general nature, such as offering trainings in science communication for academics at universities and research institutes and introducing dissemination as part of a project call.

At present, even though journalism has been a common subject at both public and private universities, science journalism as such is virtually absent from the curricula and there appear to be no other trainings for either scientists or (future) journalists in science communication as such. According to the latest report, journalism is currently being offered at BA and MA level at 3 public universities in Belgrade, Novi Sad and Niš, and 3 private ones (John Naisbitt, Singidunum – Faculty of Media and Communication, and as Sports journalism at the Faculty of Sport). While journalism as such is recognized only at BA and MA level, there is a possibility to do a PhD thesis on it at study programmes in media, communication and PR.[153] There are also several trainings and courses in journalism, web journalism, video journalism etc. traditionally being offered by the Journalists' Association of Serbia.[154] However, neither of the abovementioned institutions offers a subjects or programme in science journalism. So far, the **Centre for the Promotion of Science wad the only one to offer a course in science journalism.** In 2014/2015, they gathered some 30 interested students and members of public on this three-months course, and later published their texts in their popular

---

potential for sharing their knowledge in preparing project applications and project management; improving visibility as well as in policy-advocacy. In-depth interview with NGO representative, September 2017.

[151] See for instance Sara E. Brownell, Jordan V. Price and Lawrence Steinman, "Science Communication to the General Public: Why We Need to Teach Undergraduate and Graduate Students this Skill as Part of Their Formal Scientific Training", The Journal of Undergraduate Neuroscience Education, Fall 2013; 12(1): E6-E10; or M. R.C. Greenwood and Donna Gerardi Riordan, "Civic Scientist/Civic Duty", Sage Journals, Vol 23, Issue 1, 2001.

[152] In-depth interview withe the representative of the Center for Evaluation in Education and Science, September 2017.

[153] For more details, see: Vodič kroz akreditovane visokoškolske ustanove i studijske programe u Republici Srbiji, Komisija za akreditaciju i proveru fakulteta.

[154] For more details on the trainings offered by the Journalists' Association of Serbia, see: http://www.uns.org.rs/sr/skole-kursevi/novinarska-skola.html.

science portal Elementarijum.[155] (see Annex VII - - Journalism at university or vocational level in Serbia).

Given that all the interviewees showed sympathy for communicating science in media and valorising the media publications, **offering effective trainings or comprehensive workshops in sciences communication strategies for academics** would be better rather than trying to introduce these into the curriculum (which would be a daunting and uncertain task).

Few media in Serbia can afford to have specialized scientific journalists whose sole job is to follow scientific trends and translate them into readable/accessible form for the general public, such as those employed by the Guardian, Der Standard, NZZ and the like. Besides a few specialised journalists, Serbian media need to be spoon-fed in the sense that the scientist themselves need to adjust their results for the media.[156] In this respect *Politika* therefore shows critical edge otherwise missing from their general stance towards Serbian mainstream politics and presents a rather useful source of contacts for the scientists to present their work. *Danas*, practically the only remaining critical Serbian newspapers, also accepts eloquent contributions by Serbian scientists, if for no other reasons than for getting a free and quality material. Their monthly cultural supplement *Beton* (and its portal found at www.elektrobeton.net) presents a critical source where a number of Serbian researchers presented their results and is also fully open to contributions of various kinds. A well-known portal *Peščanik* also publishes articles and contributions written by reputable public intellectuals.[157]

With the promotion of science and scientific topics is limited to several TV shows, **the national broadcaster could play a more prominent role in promoting science and knowledge**; much more broadly than through the few bright examples such as the show "Study of knowledge" (*Studija znanja*) on Radio Television of Serbia. The predominant standpoint among interviewees is that presence of science in Serbian media is still rather modest. Apparent lack of any mention of media engagement, public influence, impact or dissemination activities therefore constitutes a systemic discouragement for researchers to promote their work in the public. Finally, the relatively new N1 TV station, a part of the CNN media conglomerate, also produces decent programme and shows interests in Serbian science. They are at present the only TV station that often sends their crew to cover scientific academic events such as public talks, lectures and dissemination events organised by Serbian scientific institutions. To sum up, despite all the limitations of the Serbian media space, the crisis in Serbian media may at least have one advantage – as they usually lack new material, getting published or broadcasted does not require much more than an average eloquence and making a phone call or sending an email. Furthermore, once established as authorities on a certain subject, scientists can expect regular invitation to voice their views in the media. On the downside, this somewhat amounted to the formation of a curious category of "political analysts" who talk for the media on anything and everything, from ISIS, terrorism, to climate change and economic reforms, such as Đorđe Vukadinović or Slobodan Antonić. Hence, at least a provisional distinction should be

[155] For more details on this course, see: Kolokvijum naučnog novinarstva, http://elementarium.cpn.rs/u-centru/kolokvijum-naucnog-novinarstva-2014/.

[156] Sandra Gucijan has written extensively about the news related to the scientific community, problems of plagiarism of high Serbian officials, perilous Ministry's reform and the never-ending wait for the next project cycle. As of recently, a relatively newly employed Politika's journalist Ana Otašević has also been vocal on these issues.

[157] For more details, visit the webpage of Peščanik at: http://pescanik.net/.

made between scientists who simply voice their views as citizens, and those presenting results of their scientific and scholarly work, particularly the one conducted within projects supported by the Ministry.

On the upside, the distance between the media, public and a lab or library is potentially shorter in Serbia than in the Western countries where academics are often locked in their ivory towers by the system rather than their inertia or lack of ideas and eloquence. Namely, those few journalists covering science are well known, easy to reach (as an interviewee stated "I feel like my phone number belongs to the entire city") and usually short of new material. In other words, any well written article for newspapers or on-line portal, followed by a modest effort in sending it to the right address, is likely to find its way into newspapers.[158] Thereby, making systemic efforts in increasing public and media presence in the Serbian media will likely have positive results.

3.5.1 Communication beyond Traditional Media

In addition to the traditional media, such as the television or press, a new field of influence has been introduced with new forms of electronic media, including blogs as well as social media (Twitter, Facebook etc.). While such new forms are gaining growing attention in the western scientific and research communities, their audiences in the Western Balkan countries still seem to be limited. Moreover, only certain segments of public can be reached by scientists through these channels, including mostly young urban population with secondary and higher education, bearing in mind that Serbia as well as the rest of WB countries is still predominantly illiterate in regard to the use of IT technologies.

In mapping current science communication practices in Serbia, this research focused on universities' and research institutes official webpages and in-depth interviews. At present, there are:

- 8 public universities with 34 faculties in social sciences and humanities (ranging from 4 at the University of Arts to 10 at University of Belgrade),
- 10 private universities with some 55 faculties, and
- 18 accredited research institutes plus 5 additional institutes of the Serbian Academy of Sciences and Arts.

The data and survey in this research was limited to 18 university websites'[159], while providing below a general discussion with representative examples from all three categories, as covering all universities and research institutes in detail would be too lengthy. The indicators used for the current science communication practices are: official website; language of the website; online social media presence; Communication and Public Relations Offices; scientific research online section and/or research blogs.[160]

[158] In-depth interview with a journalist, September 2017.
[159] For more details, see Table 19 (Annex XIV).
[160] Some universities/faculties also have pages with full text of their PhD thesis awarded. However, we did not cover this in detail as there is a national repository of PhD thesis in Serbia - NaRDuS, and all universities in Serbia are obliged to

Practically all Serbian universities, faculties and research institutes have active websites of varying level of sophistication, quality of design and information, and with only some appearing to be regularly updated and professionally maintained. Again, practically all public and most private universities have sufficient and relevant information about their study programmes and structure, including faculties, research activities and projects, departments, list of academic staff and student services. In addition, all have English language option, one (University of Novi Sad) even has a webpage in Chinese and another (University Union) offers option for Russian and Arabic, but actually offers only a one-page leaflet with basic information. However, the information in English are usually abridged, less frequently updated or altogether mission in comparison to the information in Serbian. One notable example here is the Faculty of Political Sciences in Belgrade, with Serbian page being updated daily (even on Sunday), while latest information on their English webpage are from 2014.

Private universities appear to dedicate more efforts to website design, adding video clips with short presentation of their facilities, having blogs and newsletter. In contrast, public faculties have less attractive websites, but are usually more regularly updated than those of research institutes. Still, the overall picture of science communication among research institutes is not homogenous either. Thus, while some – like the Institute for Philosophy and Social Theory – are being quite proactive in redesigning their website, including video clips of their lectures and events and using social network, others still rarely contain fresh information or even lack some basic data about their history and mission. This seems to be more the case with institutes that are part of the Serbian Academy, especially with their Institute for Serbian Language that has no information in English whatsoever.

We could thus perhaps make further distinction between, on the one hand, research institutes that are usually slow and inert in terms of using social network to communicate with the public and, on the other hand, faculties and universities in Serbia that show more attention to this aspect, as they need to attract students to enrol with their programmes.

Still, individual lecturers do use their Facebook and Twitter accounts for academic purposes, to promote and even to stimulate public outreach. In one particular instance, researchers were informed via Facebook about an article from *Politika* that stigmatized female academics for lack of patriotism[161]. In response, the following morning *Politika* received 12 articles by a number of feminists and other researchers that criticized such writing from their field of expertise, and these were soon published in print (1 in *Politika* and 1 in *Danas*) and on-line, which prompted the editor-in-chief and several other *Politika* journalists to reply to this issue themselves in the following days.[162] This case exemplifies the upsides of social media, which can trigger far faster responses and outreach than tradition forms of communication.

As an representative of a research institute, one could point to the Institute for Economic Sciences. While their website that is designed fairly well and regularly updated, it is still notably different from FMK's or FPN's website – it is designed more modestly, contains less news and no sections about the

---

deposit digital versions of their dissertations there. See: NaRDuS – National Repository of Dissertations in Serbia, http://nardus.mpn.gov.rs/.

[161] For more details, see: http://www.politika.rs/scc/clanak/312709/U-Beogradu-skoro-polovina-tridesetogodisnjakinja-nema-dete.

[162] For more on the initiative, see: http://www.elektrobeton.net/beton-plus/masina-za-radanje/.

Institute in the media or Instagram profile.[163] Out of its 29 researchers listed on their website, we found only 11 having their profiles on Academia.edu, the largest social networking website for academics, and not all of those were active and contained the researchers' articles.

As it appears, while a growing number of individual researchers in Serbia are using Twitter for scientific communication, its current outreach in Serbia is rather modest. Among the interviewed researchers, only a limited number (three researchers) were active Twitter users.[164] For instance, the official Twitter account of Belgrade University's Faculty of Economics has not been active since June 20th, 2017.[165] The practice of using private Twitter accounts for science communication among Serbian scientists seems to be limited in comparison to their colleagues from Western countries; there also seems to be a generational gap – while the youngest scientists are prone to use the Twitter, those middle-aged seems to favour Facebook, while the older once are less active on social networks in general. Hence, although according to Anglo-American publishers Twitter is leading with most entry points for reading scientific studies and publications online, this new mean of communication is still not widely used for scientific communication in social sciences in Serbia, but rather limited to younger scientists and researchers.

Taken altogether, there is a plethora of activities and events that could contribute to communicating science to general public. Public events such as festivals and days of science, and promotional activities, such as the *Science Trucks* organised by the Centre for the Promotion of Science offer interesting examples on engaging wider audiences in direct communication with scientists and researchers. The Center for the Promotion of Science stands out as a government agency with excellent results in communicating scientific research, whose programs often attract significant audience (100 or more participants) due to popular topics, creative design, attractive location and speakers, as well as good promotional tactics. According to an interviewee from this institution, the key is in "making a good story" and engaging the public.[166] This institution has already developed training in science journalism, originally launched by journalist Slobodan Bubnjević, aiming to introduce students to scientific writing, writing articles, as well as methods for searching data about scientific communication. A number of their projects aiming at popularizing science could be used as case studies for sharing know-how with scientific and research organizations.[167] Hence, such existing potential could be used for developing and implementing trainings for both journalists and researcher, in order to improve their skills in scientific communication.

[163] See the official website of the Institute for Economic Sciences at: http://www.ien.bg.ac.rs/en/.
[164] In-depth interviews with researchers, September 2017.
[165] See the official Twitter account of the Faculty of Economics of the University in Belgrade at: https://twitter.com/Ekonomski , and the official Twitter account of FREN at: https://twitter.com/FREN_Serbia ."
[166] In-depth interview with the representative of the institution, September 2017.
[167] For instance, publishing an award-winning PhD in humanities in a form of a comic book, preparing a publication of 11 PhD-s in a popular form http://elementarium.cpn.rs/u-centru/doktorati-u-prozi/.

4 Conclusion

Science Communication in Southeastern Europe is a reflection of the larger challenges sciences and research are facing. There has been chronicle underinvestment in education and science in recent decades in the region. In addition, the social norms have given little weight to research and science. Numerous scandals over plagiarism and diploma mills and the lack of any serious consequents in the region highlight the challenges faced.

This study examined in particular science communication in Albania and Serbia, highlighting considerable similarities between the two countries. In the three aspects of science communication explored here--communication within the community, communication with the policy environment and with the larger public--a number of patterns emerge.

First, science communication is not yet understood as an integral part of a scholars work. Both scholars themselves and institutions have often little understanding of what is entailed by science communication and/or remain sceptical towards it. This includes limited training for both journalists and scholars in science journalism, or policy communication and on how to ensure your research reaches the desired audience. The best-developed area is the promotion of science communication towards peers with greater emphasis on international publications. However, beyond some incentives in the case of Serbia, there is little support and infrastructure provided. Abuse is rife as the internationalization strategies only gradually distinguish between reputable and predatory publications.

Second, as social sciences are relatively small fields in both countries and the dominant languages only slightly expand the scope of audience, science communication remains not well integrated into larger social science networks. While individual researchers are part of such networks, or have left and joined the academic diaspora, these are few or no longer part of the domestic scientific landscape. Thus, internationalization is still in its infancy and with it the infrastructure of science communication.

Third, the larger social challenges feed into science communication as well. This affects policy making, characterized by high level of suspicion and lack of communication between policy makers and scholars. It also applies to the public sphere, which lacks a tradition of science communication – few media are committed to communicating about recent scholarship. In addition, there are few high-quality media that would be possible candidates. Instead, academic contributions to public debates are often limited to punditry or conventional nationalist narratives, commonly devoid of new, relevant research.

Fourth, there is an overproduction of local books and journals in both countries, particularly in Serbia. These high numbers of outlets are often subject to limited quality controls, reflect the highly fragmented and personalized academic networks. The results are many low-impact and low-research publications that are either of low quality or bury the more important research. The publications have often low print runs are either not available electronically or only in an intransparent manner, reducing their relevance.

Fifth, social media, blogging and open access publications, as just a few examples of contemporary forms of science communication remain uncommon in a social science environment that is overall conservative and with hierarchical patterns often discourages innovation and change.

Science communication is not just an afterthought to research: Without it, research is often ignored and remains marginal. In particular for social science to remain relevant, it needs to be understood by its peers, the policy community and the larger public. Effective science communication need not be an exclusive domain of well-equipped and funded institutions or research. Science communication can compensate for some other deficiencies. For example, social media can be a low-cost strategy for disseminating research findings when other costlier strategies are not available. Science communication can also increase global visibility, undermine non-meritocratic structures and ensure the social and policy relevance of social science research. Thus, the recommendations are aimed at providing concrete proposals for overcoming the aforementioned challenges and empower social science research in Serbia and Albania.

5 Recommendations

The following recommendations draw on the two studies of social science communication in Albania and Serbia and offer recommendations for scholars, research institutions (universities, research centers), relevant line-ministries, external donors, in particular the EU and PERFORM. The recommendations are grouped by the three larger themes of the studies, science-to-science communication, science to policy communication and science to public communication. The final sections contain cross cutting recommendations that are categorized by the different target audiences. Considering the considerable similarities in the challenges both Albania and Serbia are confronted with, the recommendations are addressed at both countries, unless specifically noted.

5.1 Science to Science Communication

Improving the Quality of National Academic Journals, in order to meet both the ministries demand for publishing in internationally recognized journals and to improve the overall quality of peer to peer communication of science in Serbia and Albania in the field of social sciences and humanities. This includes, improving the quality of national academic journals, working towards a genuine peer review process, English publications, and inclusion in key international indexes, such as SCOPUS/Web of Science.

Reducing the number of Academic Journals. A large number of publically funded journals, results in an oversupply of publishing outlets of low quality. The ministry, ministry-funded institutions and universities should concentrate support for fewer journals, based on clear quality criteria.

Improving the electronic presence of academic journals. Making all journals available through central open access databases, based on the Croatian example of Hrčak. This would improve the visibility and the access to recent academic research. In addition, improving the overall electronic literacy of journal editors, through trainings for interested editors or journal staff on the requirements for electronic journals. Finally, focus on raising awareness and understanding of the role of a technical editor in a journal, i.e. person familiar with technical standards required for electronic journals.

Setting higher standards and requirements for journals, including for funding that can effectively decrease their quantity and increase their quality (i.e. condition funding by DOAJ membership, outreach and impact, fulfilment of technical criteria and/or applications for WoS and Scopus lists). Award the best journals and penalize the non-performing ones, with a particular focus on transparent peer review process and electronic literacy of journal editors. Scientific journals with international potential should be provided with technical assistance and funding in order to fulfil international formal criteria and technical standards. National journals in Serbia and Albania should be supported in joining key international indexes that are markers of quality. These applications should be supported by start up funds to get journals ready to apply and rewards for journals accepted, such as funding and greater recognition for scholars publishing in them.

Supporting English-language and peer review publications of journals through funds and other support to increase the international visibility of journals (i.e. through annual English language issue), and enhancing quality of peer review process.

Supporting international publications. This includes allocate co-funding for publishing and/or proof-reading by foreign publishing houses in selected languages (German, English etc.) that would be paid directly to the publisher. In addition, simplify the existing procedure for (co)funding academics' books, conferences and fellowships by making the funding available through their home institutions. In terms of publications, the ministries in Albania and Serbia can provide for greater incentives for *publishing internationally*, such as requirements for advancement and rewards for successful international publications in verified, bona fide internationally relevant publications.

Ensuring an improved system in assessing the quality of journals and rewarding publication therein. In the case of Serbia, this would entail re-evaluating the current number of points given to Serbian journals, and in particular the "special status" of the M24 category that should ultimately be abandoned, while additionally awarding publishing in the highest ranked international journals. Include publishing in recognized international journals as a necessary prerequisite for academic progress. In the case of Albania, the Government and Ministry of Education should introduce an objective system to measure publications and to calculate points for career advancement.

Mentoring and peer programs that bring together internationally established scholars, including from the academic diaspora, with domestic researchers. These can help the knowledge transfer on good research and research dissemination practices.

Mobility schemes that supports work on research and internationalize training in writing, including doctoral students is crucial in both Albania and Serbia. This would allow younger researchers' exposure to other academic traditions, but also time to pursue research and finish articles. These mechanisms, whether as paid sabbaticals or post-doc research periods should be encouraged.

Targeting ministry of state-level publication support. Rather than funding a large range of different publications of varying quality, including conference proceedings and abstracts, state funded publications should encourage high quality journals or edited volumes. This also includes discouraging predatory conferences and publications schemes and instead create or support national flag-ship academic publishers. Publically funded research projects should include science communication components, including support for open access publication.

5.2 Science to policy

Develop *joint strategic partnership* between scientific/research institutions and think tanks/NGOs with relevant experience in policy advocacy.

Establish, update and make public the transparent and *open registry of all researchers* working both at universities and research institutes that will include names, affiliations and scientific results of all scientists. In the case of Serbia, registry board meetings for the promotion of researchers into higher ranks need to be more frequent, and the re-categorization between A1 and A6 should, as planned,

be conducted annually. The calculation of points achieved by lecturers and researchers needs to be clear, publicly accessible and in accordance with publicly available evaluation criteria. In the case of Albania, the Government should set up working groups either thematic as per program budgeting and Integrated Planning System or per ministry/sector to work with researchers – set up a list of researchers for consultation purposes and organize regular meetings; (Like the EU Delegation list of Experts and Researchers that is used to consult for particular topics).

In line with Open Government and Open Data, the government and relevant ministries should create an *online repository* of policy-relevant data produced by HEIs, think tanks, NGOs, international organizations and public institutions. Such an endeavor could also include a public policy journal that would bring together relevant research and, in the case of Serbia, allow researchers to gain points towards their academic career.

Improve the *skills in writing policy outputs* as well as common understanding with policy-makers. This includes joint trainings for researchers and policy-makers in mapping the problems, formulating and communicating their needs and expectations; as well as on the appropriate use of research outputs in policy-making.

Revise or define the *criteria for state-funding* of research to include and valorise: the contribution of projects to the policy process and-or communication to the public; to include and evaluate the categories for impact-assessment, dissemination and promotion of research results, along with requirement of periodical and final evaluation of these projects.

Raise awareness among ministries, public administration and other institutions on the importance of analytics and research for evidence-based decision-making. This also entails the establishment of Knowledge Brokers or Innovation Networks that work with Integrated Planning System and Development Programs and Strategic Planning Coordination Unit at Council of Ministers in development of policies and strategies based on working groups with researchers;

Enhance the capacities and resources of the *Research Units of the Parliament* of Albania and Serbia to support the legislative work of Committees with data and evidences from researchers.

Eliminate procedural obstacles to the active engagement of researchers in policy making (amend the Law on Public Procurements to exclude the scientific research or to enable a more practical and easier commissioning of scientific research).

Enhance incentives for engaging researchers in policy-making: in Serbia, this includes making the new M120 category of recognized publications more functional and flexible; by valorizing the policy outputs prepared by researchers and academics for international organizations; as well as by launching a new publication such as Policy Series as means for both further motivating researcher with valorization of their contribution to policy-making, and at the same time gathering relevant evidence-based research for policy-makers.

5.3 Science to public

Increasing *science communication as part of university training* in terms of curricula development on science journalism at Bachelor and Master level and curricula development on science communication as a cooperation among various disciplines, public and private, national and regional as well as international cooperation; promoting capacity development of staff, particularly junior researchers and PhDs, on science communication.

Setting up *specialised units to perform science communication*, including to train/facilitate researchers communicating research findings; to liaise with mainstream media; to develop capacities on using online social media; Introducing, promoting and facilitating the role of knowledge and innovation brokers and links to policy makers and business sector;

Developing *joint networks with targeted journalists and media*, through joint trainings of researchers and journalists to established contacts and exchange experiences and communication styles.

Enhance *incentives for the engagement* of researchers in science communication to public by establishing mechanisms for recognition and evaluation of researchers' media and public engagement.

Establishing programs for science communication, in particular in public service media and other national media as well as HEIs and high schools to create science events and programmes;

5.4 General Recommendations

5.4.1 Relevant Ministries and Governments

- Erasmus+ national priorities to be aligned to include possibilities of projects on open science and science communication;
- The ministries and relevant agencies to set up and implement control mechanisms on quality of research and specify the indicators for career path and provision of funding based on research performance;
- Science communication incorporated in *performance and career path* of researchers;
- Funding for research provided by the government and public agencies should have as a *compulsory requirement Science Communication* and the obligation of open science principles and practices;
- The Government of Albania should *include Albania into COST* by paying the fee and thus making Albanian institutions eligible to apply for COST actions, which are key to networking and publication, i.e. peer to peer communication;
- *Increase the level of funding for Serbian science* above 1% of the GDP by increasing it annually by 0.15%, as prescribed by the Serbian Science Strategy of the Ministry of Science but not implemented.

- The new project cycle should allocate funding for research costs way above the current one of 3.7%.
- In Serbia, *establish an Agency for Science***,** separate from the Ministry of Education, Science and Technological Development that would finance scientific research and issue calls for projects. Agency for Science should be separate from the Ministry, whose role would remain in defining strategies and priorities, as well as evaluating the results of the project cycles, project reports and overall scientific performance.

Open science and the ministry?

5.4.2 Research and Higher Education Institutions

- Develop strategies and financial plans to invest in high quality research and capacity development in research methodologies, research design and research project management;
- Science communication workshops and other activities focused on master and PhD students as the future generation and agents of change;
- Create guidelines and practices on how to communicate science to be easy accessible by researchers;
- Reward science communication related activities and facilitate their integration into career path;
- Cooperate with other institutions to create a critical mass of researchers highly qualified to be successful in the European Research Area;
- Use ICTs for producing audio-video materials with key messages for specific audiences (like crash course or distant online video learning);
- Set up multimedia units;
- Develop doctoral studies and units – invest in resources and infrastructure;
- Improve online presence such as websites and online social media presence;
- Support researchers to organise science events in cooperation with other HEIs;

5.4.3 Recommendations for Researchers

- Organisation of March for Science or Research Nights to promote science communication;
- Personal involvement and proactive approach in improving quality of research and rigour of methodologies – improving research competences;
- Working more with master and PhD students and involving them in meaningful research activities;
- Opening up modes of communication;
- Experimenting with citizen science;
- Experimenting with alternative science communication channels: blogging, online social network, digital storytelling, info graphics;
- New communication lines with journalists – joint activities;

- Ownership, legitimacy and trust through the reinforcement of research community and quality research.
- Circulation within the Quadruple Helix;
- Openness to communicate and share findings;
- Focus on applicable research, relevance of research for the national and regional priorities.

5.4.4 Recommendations for PERFORM

- Communicating 'science communication' – campaigns to raise awareness on the relevance of science communication and its dimensions; with whom?
- Piloting and championing as role models or success stories high quality researchers and enabling them to communicate their findings – helps to empower researchers and fight negative perceptions on 'good communicators'; how??
- Working with universities and research centres to set up their Communication units:
    - To train/facilitate researchers communicating research findings;
    - To liaise with mainstream media;
    - To develop capacities on using online social media;
- Working with universities on curricula development and quality assurance on science communication and particularly science journalism;
- Supporting and facilitating the involvement of academic diaspora in research in HEIs; starting point?
- Supporting academic journals to become internationalised, peer reviewed and indexed; how, entry point?
- Capacity development of researchers in advanced and innovative research methodologies and quality of research; yes
- Pilot projects to introduce and establish knowledge and innovation brokers at universities and/or research centres; how, entry points
- Interventions that facilitate cooperation between business and applicable social science research;
- Supporting universities and other institutions to measure the input and output of science and its performance; ok, interesting
- Supporting researchers/universities to apply for funding to address gaps in all science communication dimensions – quality of research; how?
- Facilitating the development of an integrated database of findings from universities, public and private sector, international organisations etc. similar to SEED project that could be used for evidence-based policy making. in discussion
- Supporting universities to develop their research centres and units to apply for, manage research and conduct high quality research.

Bibliography

"Analytical Support for EU Accession Negotiations & the role of research community", Institute of Economic Sciences, Belgrade, 2017.

"Drugi javni poziv za učešće u sredstvima Ministarstva za sufinansiranje izdavanja monografija u Republici Srbiji u 2017. godini", Ministarstvo prosvete, nauke i tehnološkog razvoja, 2017. Retrieved from http://www.mpn.gov.rs/wp-content/uploads/2015/09/Drugi-javni-poziv-za-sufinansiranje-monografija-u-2017.-godini.pdf.

"Može li Srbija bez nauke?", Bilten za odgovorna politička rešenja, Fondacija Centar za demokratiju, No. 7, 28. jun 2016. Retrieved from http://www.centaronline.org/userfiles/files/publikacije/fcd-dpf-bilten-7.pdf

„Da li se uspostavlja američki monopol nad srpskom naukom", Politika, 19.2.2016. Retrieved from http://www.politika.rs/sr/clanak/349545/Da-li-se-uspostavlja-americki-monopol-nad-srpskom-naukom.

„Devet instituta protiv amerikanizacije srpske nauke", Politika, 22.2.2016. Retrieved from http://www.politika.rs/sr/clanak/349723/Devet-instituta-protiv-amerikanizacije-srpske-nauke.

„Dušan Pavlović: Grupa profesora opstruira moj izbor na FPN-u", Blic, 24.10.2015. Retrieved from http://www.blic.rs/vesti/drustvo/dusan-pavlovic-grupa-profesora-opstruira-moj-izbor-na-fpn-u/v1sp9r5.

„Javni poziv za učešće u sredstvima ministarstva peosvete, nauke i tehnološkog razvoja u 2017. godini", Ministarstvo prosvete, nauke i tehnološkog razvoja. Retrieved from http://www.mpn.gov.rs/javni-poziv-za-ucesce-u-sredstvima-ministarstva-prosvete-nauke-i-tehnoloskog-razvoja-u-2017-godini/.

„Tri ne – znanje, jezik i podsticaj", Vreme, 1067, June 16, 2011.

Akt o uređenju naučnih časopisa, Ministarstvo za prosvetu, nauku i tehnološki razvoj, Retrieved from http://www.ceon.rs/pdf/akt_o_uredjivanju_casopisa.pdf.

Albania Report - IREX. (2016). Media Sustainability Index - IREX. Retrieved from https://www.irex.org/sites/default/files/pdf/media-sustainability-index-europe-eurasia-2016-albania.pdf.

Atton, C. (2002). *Alternative media*. London ; Thousand Oaks [Calif.]: SAGE.

Bailey, O. G., Cammaerts, B., & Carpentier, N. (2008). *Understanding alternative media*. Maidenhead, Berkshire: Open Univ. Press [u.a.].

Bartling, S., & Friesike, S. (Eds.). (2014). Opening science: the evolving guide on how the internet is changing research, collaboration and scholarly publishing. Heidelberg: Springer Open.

Besley, J. C., & Tanner, A. H. (2011). What Science Communication Scholars Think About Training Scientists to Communicate. *Science Communication*, *33*(2), 239–263. https://doi.org/10.1177/1075547010386972.

Bino, B. (2017, January). From access to empowerment: Countering marginalisation of Roma communities through alternative media in Albania. European University of Tirana, Albania.

Bino, B., Cabiri, K., Curraj, E., Mehmeti, I., & Hashani, A. (2015). "Knowledge-Based Regional Development in Albania and Kosovo - Reducing social and economic disparities through social and economic innovation" (Working Paper) (pp. 1–65). Vienna: The Vienna Institute for International Economic Studies. Retrieved from https://wiiw.ac.at/knowledge-based-regional-development-in-albania-and-kosovo-reducing-social-and-economic-disparities-through-social-and-economic-innovation-dlp-3895.pdf.

Bino, B., & Kadia, B. (2017). The Prospect and Development of Public Service Media: The Case of Albania. Retrieved 15 July 2017, from http://www.analitika.ba/en/publications/prospect-and-development-public-service-media-case-albania.

Bogdanović, Aleksandar, "Think tanks in Serbia: In Pursuit of Impact", Research Forum of the European Movement in Serbia, October 2016. Retrieved from http://www.emins.org/uploads/useruploads/forum-it/08-PB-Think-tankENG---NET.pdf.

Breneselović, Luka, „Tri priloga raspravi o bodovanju i oceni naučnog rada", Cedulje iz hronike stavova i događaja, April 2016. Retrieved from https://cedulje.wordpress.com/2016/04/06/tri-priloga-raspravi-o-bodovanju-i-oceni-naucnog-rada/.

Brownell, Sara E., Price, Jordan V. and Steinman, Lawrence, "Science Communication to the General Public: Why We Need to Teach Undergraduate and Graduate Students this Skill as Part of Their Formal Scientific Training", The Journal of Undergraduate Neuroscience Education, Fall 2013; 12(1): E6-E10.

Brumfiel, G. (2009). Science journalism: Supplanting the old media? *Nature*, *458*(7236), 274–277. https://doi.org/10.1038/458274a.

Bucchi, M., & Trench, B. (Eds.). (2014). *Routledge handbook of public communication of science and technology* (Second edition). London ; New York: Routledge, Taylor & Francis Group.

Budiloski, Goran, „Some Musing on Development of Independent Policy Making and Think Tanking in Central and Eastern Europe", National Security & Defence, No. 6, 2007.

Bultitude, K. (2011). The Why and How of Science Communication. In P. Rosulek, *Science Communication* (pp. 1–18). Pilsen: European Commission.

Buranyi, S. (2017). Is the staggeringly profitable business of scientific publishing bad for science. *The Guardian*. Retrieved from https://www.theguardian.com/science/2017/jun/27/profitable-business-scientific-publishing-bad-for-science.

Burns, T. W., O'Connor, D. J., & Stocklmayer, S. M. (2003). Science Communication: A Contemporary Definition. *Public Understanding of Science*, *12*(2), 183–202. https://doi.org/10.1177/09636625030122004.

Carpentier, N. (2011). Media and participation: a site of ideological-democratic struggle. Bristol: Intellect.

Cheng, D., Claessens, M., Gascoigne, T., Metcalfe, J., Schiele, B., & Shi, S. (Eds.). (2008). *Communicating science in social contexts: new models, new practices*. Dordrecht: Springer.

Cholakov, R. (2015). Employment conditions of journalists in Albania, Bosnia-Herzegovina, Former Yugoslav Republic of Macedonia, Montenegro and Serbia - Regional Report 2015 (pp. 1–26). Center for Independet Journalism, Romania: South-East European Partnership for Media Development. Retrieved from http://www.seenpm.org/wp-content/uploads/2015/05/raport_1_5mai.pdf.

Constitution of the Republic of Serbia, Official Gazette of the Republic of Serbia, no. 98/2006.

Curry, S. (2017a). It's time for academics to take back control of research journals. *The Guardian*. Retrieved from https://www.theguardian.com/higher-education-network/2017/may/25/its-time-for-academics-to-take-back-control-of-research-journals.

Curry, S. (2017b). Peer review is essential to good science – it's time to credit expert reviewers. *The Guardian*. Retrieved from https://www.theguardian.com/science/2017/jun/01/peer-review-is-essential-to-good-science-its-time-to-credit-expert-reviewers.

Dašić, Predrag, Moldovan, Liviu and Grama, Lucian, "Status and analysis of scientific journals indexed in SCI, SCI-E and SSCI citation databases from Romania and Serbia", Procredia Technology 19 (2015), pp. 1075-1082., Retrieved from https://core.ac.uk/download/pdf/81109341.pdf.

Dauti, M., & Bejko, E. (2015). *Use of scientific evidence in designing social protection policies in Albania* (National Policy Dialogue in Albania). Tirana: Institute for Democracy and Mediation. Retrieved from http://idmalbania.org/wp-content/uploads/2014/10/RRPP_Policy-Document-no1-Albania.pdf.

Davies, Huw T.O., Nutley, Sandra M. and Smith, Peter C., What Works: Evidence-based policy and practice in public services, Bristol, The Policy Press, 2000.

Davies, Philip, „Is Evidence-Based Governement Possible?", Conference Paper for the Campbell Collaboration Colloquium, Washington, February 2004.

Davies, S. R. (2008). Constructing Communication: Talking to Scientists About Talking to the Public. *Science Communication*, *29*(4), 413–434. https://doi.org/10.1177/1075547008316222.

de la Fuente, G. B. (2017). What is Open Science? Introduction. Retrieved 22 August 2017, from https://www.fosteropenscience.eu/content/what-open-science-introduction.

Digitalni repozitoriju Narodne biblioteke Srbije: http://repozitorijum.nb.rs/.

Directory of Open Access Journals (DOAJ): https://doaj.org/.

Draft Law on Higher education, Retrieved from the official webpage of Serbian National Assembly http://www.parlament.gov.rs/upload/archive/files/lat/pdf/predlozi_zakona/2477-17%20lat.pdf.

Draft Law on Systemic Planning of the Republic of Serbia, retrieved from: http://www.paragraf.rs/nacrti_i_predlozi/141116-nacrt_zakona_o_planskom_sistemu_republike_srbije.html.

Eisen, M. (2003). Publish and be praised. *The Guardian*. Retrieved from https://www.theguardian.com/education/2003/oct/09/research.highereducation.

European Commission (Ed.). (2016). *Open innovation, open science, open to the world: a vision for Europe*. Luxembourg: Publications Office of the European Union.

European Commission. (2017). *Overview of higher education in Albania*. Brussels: EACEA.

Fecher, B., & Friesike, S. (2014). Open Science: One term, five schools of thought. In S. Bartling & S. Friesike, *Opening Science* (pp. 17–47). New York: Springer. Retrieved from http://book.openingscience.org/basics_background/open_science_one_term_five_schools_of_thought.html.

Greenwood, M. R.C. and Gerardi Riordan, Donna, "Civic Scientist/Civic Duty", Sage Journals, Vol 23, Issue 1, 2001.

Holgate, S. A. (2012). Emerging Professions: Knowledge Broker. Retrieved 11 August 2017, from http://www.sciencemag.org/careers/2012/06/emerging-professions-knowledge-broker.

Holland;, E. M., Pleasant;, A., Quatrano;, S., Gerst;, R., Nisbet, M. C., & Mooney, C. (2007). The Risks and Advantages of Framing Science. *Science*, *317*(5842), 1168b–1170b. https://doi.org/10.1126/science.317.5842.1168b.

Hrčak web portal: https://hrcak.srce.hr/?lang=en.

Jager, W., & Edmonds, B. (2015). Policy making and modelling in a complex world. In *Policy practice and digital science* (pp. 57–75). Cham: Springer.

Janssen, M., & Wimmer, M. A. (2015). Introduction to Policy-Making in the Digital Age. In *Policy Practice and Digital Science* (pp. 1–15). Cham: Springer.

Jenkins, E. W. (1994). Public understanding of science and science education for action. *Journal of Curriculum Studies*, *26*(6), 601–611. https://doi.org/10.1080/0022027940260602.

Karini, A. (2013). Aid-Supported Public Service Reform and Capacity Development in Post-Communist Albania. *International Journal of Public Administration*, *36*(7), 469–481. https://doi.org/10.1080/01900692.2013.772634.

Koolstra, C. M., Bos, M. J., Vermeulen, I. E., & others. (2006). Through which medium should science information prefessionals communicate with the public: Television or the Internet? Retrieved from http://dare.ubvu.vu.nl/bitstream/handle/1871/32297/192995.pdf?sequence=3.

Law on Government, „Official Gazette of the Republic of Serbia", no. 55/2005, 71/05-correction, 101/07, 65/08, 16/11, 68/12, 72/12, 7/14 and 44/14.

Law on Public Administration, Official Gazette of the Republic of Serbia, no. 79/2005, 101/2007 and 95/2010.

Lazarević, Milena, Marić, Sena and Orza, Amanda, Policy Making and EU Accession Negotiations: getting results for Serbia, Deutche Gesellschaft fur Internationale Zusammenarbeit GIZ, Belgrade, 2013.

Londo, I. (2014). Albania. In *Media Integrity Matters: Reclaiming public service values in media and journalism* (pp. 51–119). Ljubljana: Peace Institute, Institute for Contemporary Social and Political Studies.

Londo, I. (2015). *Overview of Labor Relations in the Media in Albania* (South-East European Partnership for Media Development) (pp. 1–18). Tirana: Albanian Media Institute. Retrieved from http://www.cji.ro/wp-content/uploads/2015/05/Albania.pdf.

London, L. (2012). Mapping the digital media: Albania country report. Open Society Foundations.

Mancini, P., & Zielonka, J. (2012). Introduction - Structure and performance of the news media in Central and Eastern Europe. *The International Journal of Press/Politics*, *17*(4), 379–387.

Master Journal List of the Web of Science: http://mjl.clarivate.com/cgi-bin/jrnlst/jlresults.cgi?PC=MASTER&ISSN=0353-5738.

MIAP & DAP. (2015). Crosscutting Public Administration Reform Strategy 20152020. Ministry of Innovation and Public Administration. Retrieved from http://dap.gov.al/images/DokumentaStrategjik/PAR_Strategy_2015-2020_English.pdf.

Miller, J. D. (1992). Toward a scientific understanding of the public understanding of science and technology. *Public Understanding of Science*, *1*(1), 23–26. https://doi.org/10.1088/0963-6625/1/1/005.

Nacrt strategije naučnog i tehnološkog razvoja Republike Srbije za period od 2016. do 2020. godine – "Istraživanje za inovacije", Ministry of Education, Science and Technological Development, Belgrade, November 2015. Retrieved from http://www.mpn.gov.rs/wp-content/uploads/2015/08/Strategija-nauka-za-inovacije-17-NOVO.pdf.

Nelkin, D. (1995). Selling science: how the press covers science and technology (Rev. ed). New York: W.H. Freeman.

Nisbet, M. C., & Scheufele, D. A. (2009). What's next for science communication? Promising directions and lingering distractions. *American Journal of Botany*, *96*(10), 1767–1778. https://doi.org/10.3732/ajb.0900041.

Nutley, Sandra, Walter, Isobel and Davies, Huw, „From Knowing to Doing: A framework for understanding the evidence into practice agenda", Sage Journals, Vol 9, Issue 2, 2003.

Obradović Ćuk, Jelena, Mitić, Petar, and Dimitrijević, Mirjana, „Značaj ulaganja u nauku – regionalna i nacionalna analiza", presented at the: XXIII skup trendovi razvoja, „Položaj visokog obrazovanja i nauke u Srbiji", retrieved from http://www.trend.uns.ac.rs/stskup/trend_2017/radovi/T2.1/T2.1-3.pdf.

Ocokoljić, Slobodan, Kleut, Jelena and Radovanović, Bojana, Uslovi rada i status mladih istraživača na univerzitetima, institutima i u nevladinom sektoru, Institut Ekonomskih nauka, Beograd, 2015.

OECD. (2015). Making Open Science a reality. OECD Publishing. Retrieved from http://dx.doi.org/10.1787/5jrs2f963zs1-en.

Official List of Accredited Faculties and Universities, Committee for Accreditation of Scientific Research Organizations of the Ministry of Education, Science and Technological Development, retrieved from http://www.mpn.gov.rs/wp-content/uploads/2015/08/Akreditovani_fakulteti_i_univerziteti-2014_022.pdf.

Official List of Accredited Institutes, Ministry of Education, Science and Technological Development, retrieved from http://www.kombeg.org.rs/Slike/CeTranIRazvojTehnologija/2016/Februar/Akreditovani-instituti.pdf.

Patt, A. (2009). Communicating uncertainty to policy makers. Uncertainties in Environmental Modelling and Consequences for Policy Making, 231–251.

Pöschl, U. (2012). Multi-stage open peer review: scientific evaluation integrating the strengths of traditional peer review with the virtues of transparency and self-regulation. *Front. Comput. Neurosci.* Retrieved from http://journal.frontiersin.org/article/10.3389/fncom.2012.00033/full.

Pravilnik o načinu i postupku sticanja zvanja i zasnivanja radnog odnosa nastavnika Univerziteta u Beogradu, Univerzitet u Beogradu, Beograd, 13.5.2008. Retrieved from https://bg.ac.rs/files/sr/univerzitet/univ-propisi/Pravilnik_o_izboru_u_zvanja.pdf.

Pravilnik o postupku, načinu vrednovanja i kvantitativnom iskazivanju naučnoistraživačkih rezultata istraživača, Official Gazette of the Republic of Serbia, No 24/2016 and 21/2017. Retrieved from http://www.mpn.gov.rs/wp-content/uploads/2017/03/Pravilnik-2017-preciscen-tekst.pdf.

Predlog Pravilnika o kategorizaciji i rangiranju naučnih časopisa, Ministarstvo prosvete, nauke i tehnološkog razvoja, 2016. Retrieved from http://www.mpn.gov.rs/wp-content/uploads/2015/09/kategorizacija-%C4%8Dasopisa.pdf.

Registry of innovation, Ministry activities of Education, Science and Technological .Development: http://www.mpn.gov.rs/tehnoloski-razvoj-2/inovaciona-delatnost/registar-inovacione-delatnosti/.

Rose, S. P. (2003). *How to (or not to) communicate science*. Portland Press Limited. Retrieved from http://www.biochemsoctrans.org/content/31/2/307.abstract.

Russell, N. J. (2010). *Communicating science: professional, popular, literary*. Cambridge, UK ; New York: Cambridge University Press.

Schäfer, M. S. (2011). Sources, Characteristics and Effects of Mass Media Communication on Science: A Review of the Literature, Current Trends and Areas for Future Research: Mass Media Communication on Science. *Sociology Compass*, *5*(6), 399–412. https://doi.org/10.1111/j.1751-9020.2011.00373.x.

Scheufele, D. A. (2006). Messages and heuristics: How audiences form attitudes about emerging technologies. In J. Turney, *Engaging science: Thoughts, deeds, analysis and action* (pp. 20–25). London: Wellcome Trust.

Scheufele, D. A. (2007). Nano doesn't have a marketing problem… yet. *Nano Today*, *2*(5), 48. https://doi.org/10.1016/S1748-0132(07)70159-7.

Serbia 2016 Report, European Commission, Brussels, November 2016. Retrieved from https://ec.europa.eu/neighbourhood-enlargement/sites/near/files/pdf/key_documents/2016/20161109_report_serbia.pdf

Serbian Citation Index database: http://scindeks.ceon.rs/Journals.aspx.

Seventh FP7 Monitoring Report, European Commision, Directorate-General for Research and Innovation, Publications Office of the European Union, Luxembourg, 2015. Retrieved from https://ec.europa.eu/research/evaluations/pdf/archive/fp7_monitoring_reports/7th_fp7_monitoring_report.pdf#view=fit&pagemode=none.

Ševkušić, Milica, Janković, Zorica and Kužet, Aleksandra, Open Access Journals in Serbia: Policies and Practices, National Library of Serbia, Department of Scientific Information, Belgrade, 2017. Retrieved from http://repozitorijum.nb.rs/predavanja/9788670353824.pdf.

Shaxson, L. (2016). Project Guidelines: DEGRP Impact and Communications Strategy. Retrieved 8 August 2017, from http://degrp.squarespace.com/impact/.

Shaxson, L. (2017). SUPPORTING IMPACT | The Impact Initiative. Retrieved 5 August 2017, from /impact-lab/collection/supporting-impact.

Šipka, Pero, "Deset godina naglog rasta srpske naučne produkcije: Ali šta je s njenim kvalitetom?" in: A. Kostić, (Ur.), Nauka: stanje, strategija, perspektive (str. 33-62), SANU, Beograd, 2016. Retrieved from http://www.ceon.rs/pdf/deset_godina.pdf.

Šipka, Pero, "Internacionalizacija i evaluacija kao izazovi srpske humanistike", u: A. Kostić (Ur.) Nauka: stanje, strategija, perspektive (str. 309-329), SANU, Beograd, 2016. Retrieved from http://www.ceon.rs/pdf/humanistika.pdf.

Smith, R. (2015). The peer review drugs don't work. *The Times Higher Education*. Retrieved from https://www.timeshighereducation.com/content/the-peer-review-drugs-dont-work.

Source Publication List for Web of Science. Science Citation Index Expanded., Clarivate Analytics, Updated July 2017, http://ip-science.thomsonreuters.com/mjl/publist_ssci.pdf.

Spezi, V., Wakeling, S., Pinfield, S., Creaser, C., Fry, J., & Willett, P. (2017). Open-access mega-journals: The future of scholarly communication or academic dumping ground? A review. *Journal of Documentation*, *73*(2), 263–283. https://doi.org/10.1108/JD-06-2016-0082.

Spisak časopisa iz Srbije dostupnih u elektronskoj formi, KoBSON, http://kobson.nb.rs/nauka_u_srbiji/elektronski_casopisi_iz_srbije.95.html?service=26&offset=19.

Stević, Aleksandar, „Nekoliko crtica o amaterskom pravilniku", Pešanik, 5.3.2016. Retrieved from http://pescanik.net/nekoliko-crtica-o-amaterskom-pravilniku/.

Tanner, A. H. (2004). Agenda Building, Source Selection, and Health News at Local Television Stations: A Nationwide Survey of Local Television Health Reporters. *Science Communication*, *25*(4), 350–363. https://doi.org/10.1177/1075547004265127.

The European Charter for Researchers. The Code of Conduct for the Recruitment of Researchers, European Commission, Directorate-General for Research, Brussels, 2005. Retrieved from https://euraxess.ec.europa.eu/sites/default/files/am509774cee_en_e4.pdf.

Treise, D., & Weigold, M. F. (2002). Advancing Science Communication: A Survey of Science Communicators. *Science Communication*, *23*(3), 310–322. https://doi.org/10.1177/107554700202300306.

van Dijck, J. (2003). After the "Two Cultures": Toward a "(Multi)cultural" Practice of Science Communication. *Science Communication*, *25*(2), 177–190. https://doi.org/10.1177/1075547003259540.

Vodič kroz akreditovane visokoškolske ustanove i studijske programe u Republici Srbiji, Komisija za akreditaciju i proveru kvaliteta, Beograd, septembar 2017. Retrieved from https://drive.google.com/file/d/0Bwr8qEMuakSJZ0lXTURrUV96eWc/view.

Voltmer, K. (2013). *The meda in transitional democracies*. Cambridge: Polity.

Weimer, David L,. and Vining, Aidan R., *Policy Analysis*: Concepts and Practice, Pearsons, V edition, March 2010.

Wynne, B. (2006). Public Engagement as a Means of Restoring Public Trust in Science – Hitting the Notes, but Missing the Music? *Public Health Genomics*, *9*(3), 211–220. https://doi.org/10.1159/000092659.

Xheneti, M., & Kitching, J. (2011). From Discourse to Implementation: Enterprise Policy Development in Postcommunist Albania. *Environment and Planning C: Government and Policy*, *29*(6), 1018–1036. https://doi.org/10.1068/c10193b.

Xhindi, N., Bino, B., & Gjokutaj, E. (2014). Challenges of higher education in Albania in the framework of priorities of Europe 2020 Agenda. *Albania towards Europe 2020*, 7–21.

Young, Eoin and Quinn, Lisa, Making Research Evidence Matter: A Guide to Policy Advocacy in Transition Countries, Open Society Foundations, Budapest, 2012.

Annex I – Guidelines for in-depth interviews

A - Journalists

Possible topics for the journalists:

- Areas of specialization
- Working practices
- Media organisational culture
- Collaboration with scientists/researchers in social sciences
- Public audiences' interests on science
- Science reporters vs. regular reporters
- ICTs and other technologies
- Interplay of alternative media
- Capacity development, skills and resources

B – Researchers

- Understanding of public communication/science communication
- Working practices
- University structures and culture – evaluation, promotion, incentives
- Communication competency/skills/training/capacity development
- Media consumer - whom you talk too?
- Professionalization of science communication within university: PR/knowledge brokers
- ICTs usage and skills
- Interplay of alternative media
- Current practices of communicating with policy domain
- Current practices of communicating with public
- Current practices of science – media relations

C- Policy makers

- Understanding of science – policy communication
- Current practices/examples/cases of cooperation with research institutions
- ICTs usage and skills
- Interplay of media
- Capacity development, skills and resources

Informacion për projektin kërkimor

Titulli: Analizë e praktikave të komunikimit të shkencës në Shqipëri me fokus shkenca politike dhe shkencat ekonomike
Organizata implementuese: Kërkues individualë
Mbështetur nga: PERFORM
Periudha e projektit kërkimor: Korrik – Tetor 2017
Grupi i punës:
Kërkuese Senior: Dr Blerjana Bino
Kërkuese Junior: Dr Irena Myzeqari
Qëllimi dhe përdorimi i të dhënave:
Qëllimi i projektit kërkimor është të analizojë praktikat ekzistuese të komunikimit të shkencës në Shqipëri dhe hartimin e rekomandimeve për përmirësim me fokus shkencat politike dhe ekonomike.
Të dhënat e mbledhura do të hartohen në formën e raportit përfundimtar në anglisht dhe përmbledhje në shqip nga PERFORM dhe nuk do të shpërndahen, por do të përdoren nga PERFORM për të ndërmarrë iniciativa të tjera në të ardhmen për të përforcuar komunikimin e shkencës.
Konfidencialiteti i të dhënave të marra prej jush përmes intervistës do të ruhet.

INFORMACION PËR TË INTERVISTUARIN
Emri/Mbiemri_____ *(opsional)*
E-mail_____
(nevojitet për miratimin e zbardhjes së intervistës dhe dërgimin e informacioneve të mëtejshme)

Mob_____*(opsional)*
Institutcioni_____
Pozicioni_____*(opsional)*

LINJAT E PYETJEVE

Prezantimi i ekspertit/kërkuesit/studiuesit, specializimi, fusha e interesit dhe institucioni/et me të cilat punon.

Si e kuptoni komunikimin e shkencës apo të kërkimit?

Cilat janë disa nga praktikat kryesore që keni ndjekur ju për të komunikuar kërkimin tuaj? Cilat sfida keni hasur?

Cilat janë disa nga praktikat kryesore që ndjek institucioni juaj për të promovuar stafin për komunikimin e shkencës?

A ka institucioni juaj apo të tjerë që keni punuar struktura/njësi/staf të dedikuar për të komunikuar shkencën? Lidhjen me shoqërinë? Politikë-bërjen?

Me cilat media komunikoni? Si? (media = TV, radio, shtypi, online, botime, blog personal, etj.) Cilat janë sfidat?

Në përvojën tuaj kërkimore, a keni pasur bashkëpunime me aktorë politikë-bërës? Po me sektorin privat? Cilat janë sfidat?

Cilat janë kompetencat për të cilat kërkuesit kanë nevojë për mbështetje/trajnim e zhvillim? Po ju?

Cilat do ishin rekomandimet që do jepnit ju për të zhvilluar komunikimin e shkencës në Shqipëri në fushën tuaj?

Nëse doni të shtoni elementë të tjerë...

Faleminderit për kohën!

Annex II – Detailed sample of informative and in-depth interviews

	Science Communication - Albania				
	Contact Details of Interviewees in Albania				
No.	**Name**	**Position**	**Organization**	**Email**	**Date of Interview**
1	Marsela Dauti	Political Scientist - migration studies	NYUT	marsela.dauti@gmail.com	31-Aug-2017
2	Drini Imani	Deputy Director / Senior Researcher in Economy	ISETN	drinimami@yahoo.com	4-Sep-2017
3	Edvin Zhllima	Lecturer / Economy	Agriculture University of Tirana	ezhllima@ubt.edu.al	4-Sep-2017
4	Esmeralda Shehaj	Lecturer / Economy	University of Tirana	esmeralda.alb@gmail.com	6-Sep-2017
5	Elvin Gjevori	Political Scientist	UET/ Malmo University	elvin.gjevori@uet.edu.al	5-Sep-2017
6	Selami Xhepa	Senior Economist / Researcher	European Institute "Pashko"	selami.xhepa@uet.edu.al	5-Sep-2017
7	Orinda Malltezi	Political Scientist	University of Tirana	o.malltezi@gmail.com	31-Aug-2017
8	Armanda Hysa Kodra	Researcher	Albanian Centre of Albanology		29-Aug-17
9	Jonila Godole	Media Scholar	University of Tirana/Head of IDMC	jonila.godole@idmc.al <jonila.godole@idmc.al>	6-Sep-2017
10	Bashkim Gjergji	Lecturer, researcher	Department of Journalism, UT	<bgjergji@gmail.com>	31-Aug-2017
11	Blerina Gjoka	Journalist	MAPO Newspaper	b_gjoka@yahoo.com	30-Aug-2017
12	Eda Gemi	Political Scientist	Faculty of Social Sciences, UET	eda.gemi@uet.edu.al	7-Sep-2017
13	Fitim Zekthi	Journalist	Freelance	fitim.zekthi@gmail.com	13-Sep-2017
14	Alfred Lela	Founder of Online Media Portal/Former Director of MAPO Media	Politiko.AL	alfred.lela77@gmail.com	11-Sep-2017
15	Dalina Jashari	Researcher	Institute for Democracy and Mediation	djashari@idmalbania.org	11-Sep-2017
16	Gledis Gjipali	Director	European Movement Albania	gledis.gjipali@em-al.org	15-Sep- 2017
17	Elira Zaka	Director Research and Development Unit	Department for Development and Donor Coordination, Council of Ministers	Elira.zaka@kryeministria.al	17-Oct- 2017
18	Nevila Xhindi	Former Deputy Mayor	Municiaplity of Tirana	nevilasokoli@gmail.com	16-Oct-2017

Annex III – Details on research objectives and methods

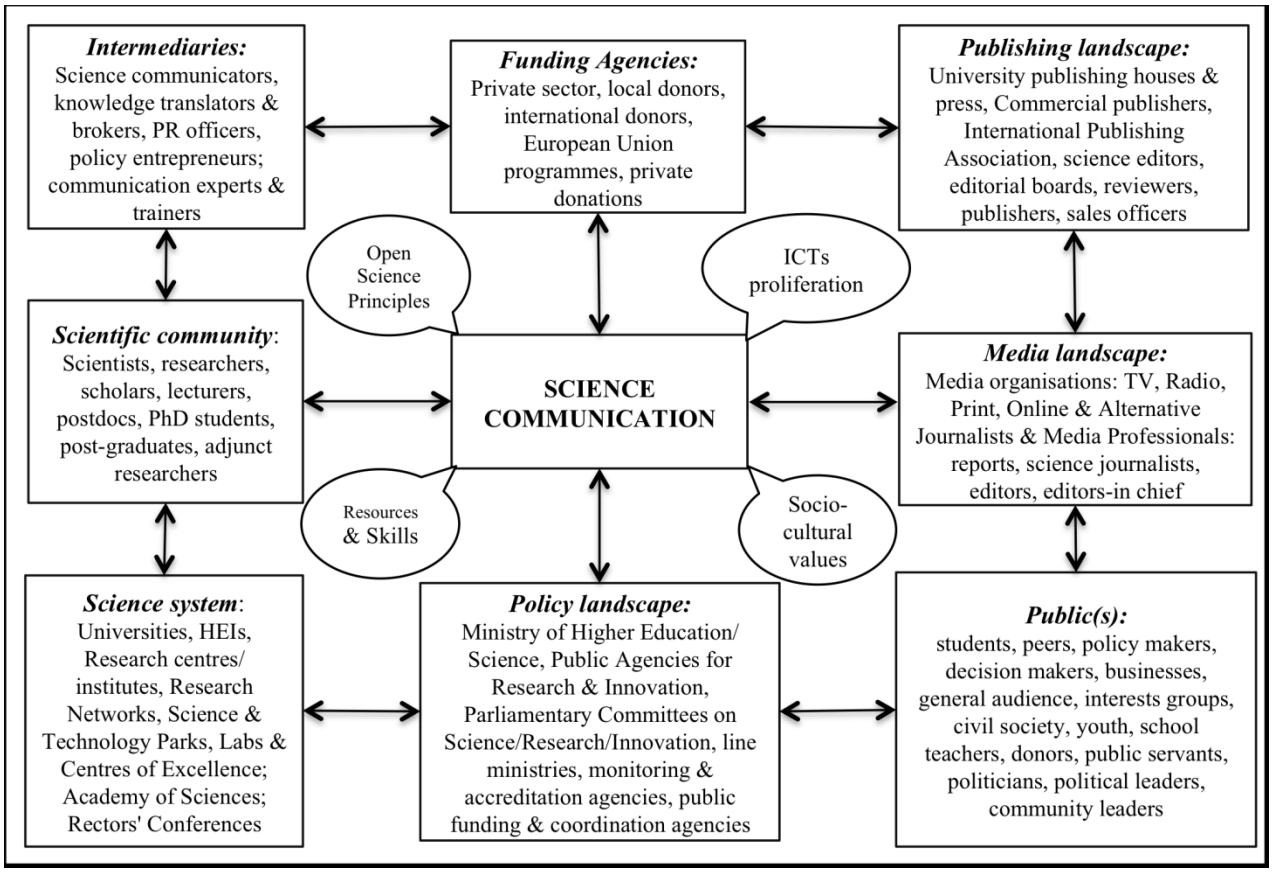
Table 10: Research objectives and methods

Research Objective	Research Method
a. To investigate the current practices of science communication	- In-depth interviews with researchers in political and economic sciences - Informative interviews with stakeholders in academia, policymaking, private sector, civil society and media - Document analysis: reports, resources, publications, public relations practices and media and communication training of researchers in higher education institutions and research centres; data on academic publications, conference participations, media appearance of scientist to present their research etc.
b. To analyse the impact of regulatory framework, cultural values and norms on current situation and practices of science communication	- In-depth interviews with researchers in political and economic sciences - Informative interviews with stakeholders in academia, policymaking, private sector, civil society and media - Document analysis: Higher Education Legislation, Science and Research Strategy and other related legislation and policy documents, university statutes, policies and strategies; researchers' code of conduct etc.
c. To explore the dynamics of science communication impact on individual scientist, academic and research institutions and the wider environment in which they operate	- In-depth interviews with researchers in political and economic sciences
d. To explore the underlying factors of the current situation of science communication	- Based on research findings and data analysis of primary data and survey of literature
e. To identify potential drivers for future improved practices of science communication and enhanced effectiveness	- Based on research findings and data analysis of primary data and survey of literature
f. To provide a comparative framework analysis of science communication in Albania vis a vis Western countries	- Document analysis, secondary resources and survey of literature

Annex IV – Science Communication System

This figure illustrates the key dimensions of science communication system and the potential indicators for measuring performance, whereby the researchers have based their analysis of science communication in Albania.

Figure 7: Science Communication System[168]



[168] Source: Authors' elaboration.

Annex V – Science Communication Performance Indicators

Table 11: Science Communication Performance Indicators[169]

Peer-to-peer Communication			Science to Policy		Science to Society	
#	Indicators	Measurement	Indicators	Measurement	Indicators	Measurement
1.	Scientific publishing - Journals	Citation indexing & JIF	Publications	Content-based	Science education	Curricula
1.1	Peer review & highly selective academic journals	Citations & JIF/Web of Science/Scopes/T&R	Policy Papers	Content & Reception (difficult to assess the reception of policy papers/briefs/docs)	Elementary & Primary Education	Type & quality of curricula; teachers' training, resources
1.2	Open access mega-journals	Citations/Discussion entries - altmetric; icite	Policy Briefs		High schools	
1.3	Pre-prints & repository	Discussion entries/Citations	Policy Documents/Reports		Higher education	
2	Scientific conferences	Citations/Proceedings indexes	Science-Policy Events	Participation & Reception	Science events	Participation & Reception
2.1	Paper presentation in international Scientific Conferences	Citations & Follow up publication	Stakeholders' workshop	# of participants; follow up actions	Science Open Days	# of participants; follow up actions
2.2	Paper presentation in national Scientific Conferences	Citations & Follow up publication	Joint conferences		Exhibitions	
2.3	Panel organisation in scientific	# speakers; follow up publication; citations	Thematic roundtables		Public talks	

[169] Source: Authors' elaboration. Cross-cutting issues: - media organisations & professionals: mainstream & alternative; - open science, - science and higher education policy.

Peer-to-peer Communication			Science to Policy		Science to Society	
#	Indicators	Measurement	Indicators	Measurement	Indicators	Measurement
	conferences					
3	Academic publishing	Bibliometrics/Sales	Laboratories	# & quality of outputs	Participation in & through media	Access, participation, reception
3.1	Monographs	# reviews; sales of printed books/subscription e-books	Policy Labs	#joint projects	Coverage - TV	#&quality of reports/coverage
3.2	Edited volumes		Policy-oriented research units	# & quality of publications	Coverage - Radio	
3.3	Thesis		Science - Policy Relations Unit	#joint projects	Science Articles - Print	#&quality of articles
3.4	Research reports	Citations & Follow up publication	Science - Policy Networks	Sustainability	Op-Ed & Commentaries	Public reception & status as public intellectual
4	Scientific events	Content-based	Research & Innovation	# & quality of outputs	Alternative media	Diversity & Reception
4.1	Scientific workshops	Quality of participants/Follow up activities & publications	Research & Innovation units - government	#joint projects	Digital Storytelling for Science	Content, diversity, discussions, reception, follow up
4.2	Research seminars		Policy consultations	#&quality of publications & input from science	Science apps / open platforms	
4.3	Doctoral schools		Policy review & evaluation		Online social media: Facebook, Twitter, LinkedIn	
5	Participation in & through media/Alternative media				Science Blogs	
					Personal Blogs	

Annex VI: Current and alternative practices of science communication

Table 12: Peer-to-Peer science communication: Current and alternative practices[170]

Current Practices - Status Quo		Alternatives - Emerging Practices
1 -	Scientific publishing in peer reviewed academic journals with restricted access	Scientific publishing through preprints open access available online
Pros	Major factor in career path advancement	Democratization of science through rapid publication; faster and wider dissemination of findings; multiple level feedback from peer/non peers and research community
	Prestige and higher academic professional status	Various peer-review techniques: post publication, multistage or combined peer review
	Quality and reliability of research results through peer review process based on multiple research assessment criteria	Better mapping of the field of inquiry and knowledge sharing
Cons	Slow publishing process	Does not count for career path - regulation constraints
	Slow & limited dissemination of findings	Open access costs as burden for young researchers
	Influence of publishers on what researchers are to study	Status and prestige of quality of research still relatively questionable - quality bar is deemed lower
2-	Restricted subscription based on institutional / individual access fees	Open access / Pre-publication article processing charges (APCs)
Pros	Recovers costs of publications & distribution	Potential to increase the impact of scientific discoveries
	Maintains high quality journals based on metric system evaluation - Journal Impact Factor (JIF)	Almost no publication & distribution costs - all online
	Quality assurance of research work	Researcher owns the right of the publication
	A reference system to objectively assess performance of individual researchers and institutions	Increased data sharing among the community and beyond
Cons	Publisher owns the right to the publication	Publication costs need to be added to costs of doing research
	Universities & Libraries - big budgets for subscription	APCs are a financial burden to young researchers / postdocs

[170] Source: Authors' table based on literature review.

	Closed system and fragmented per topic of inquiry with highly selective / highly specialised journals	JIF ranking becomes irrelevant - not possible to rank journals
3-	Metric Ranking System - Journal Impact Factor	Content based assessment
Pros	Rank and advertise journals - good for publishers	Appropriate indicator of the quality of individual papers and their merit
	Publication in high impact journals translates into rewards in jobs and funding	Data, findings, results are made available and shared on online platforms and available for all to use, build up, critique
	JIF as an objective indicator of quality of research	Caters for the interests of researchers and science community
Cons	JIF a poor indicator of the quality of individual papers	Does not count towards rewards in jobs and funding - regulation constraints
	JIF caters for the commercial interest of the publishers	Ranking cannot be done and assessment is based on qualitative indicators, not quantitative
4-	Peer review process	Post publication peer review / multistage peer review
Pros	Voluntary task on the basis of a quid pro quo principle	Credit reviewers ex Publons
	Central to quality assurance of research work prior to publishing	On-going quality checks on preprints and published research work
	No rewards - Does not count towards career path	Spreads the burden/load of reviewing that currently falls mainly on US or EU based researchers
	Established authority of journals - highly selective journals	Increased transparency as reviews are public
	Anonymity contributes to frank assessments	A dialogic process of reviewing - higher responsibility
Cons	Increasing load of research publications makes it difficult to catch errors/fraud	Concerns about quality still remain without the comfort of peer review
	Peer review reports are not published - issues of transparency	The current system is resilient - career path & prestige
	Anonymity has also revealed a dark side of academics: jealousy, ignorance and laziness	Requires more resources to do pre and post publication reviews
5-	Highly-selective and highly specialised journals	Mega-journals, preprint servers
Pros	Contribute to career path & prestige in professional status	Contribute to address issues of reliability and reproducibility
	Specialised in a particular area of inquiry - targeted audiences	General journals, general audiences
	Subscription based business model - income is based on institutional or individual subscriptions	Open access business model - pre-publication article processing charges (APCs) - income is linked to output of the journal

	Peer review based on many research assessment criteria: relevance, scientific soundness, novelty, interest to a particular subject community	Democratization of science - peer review open to the community coupled with post publication review
	No risk for predatory titles	Deposit data along with paper publication and reviews, thus enhance quality
Cons	Many retractions: Concerns on reliability and reproducibility	Low rejection rate - concerns about quality (low quality bar/risk for predatory titles)
	High rejection rate, high number of papers to be reviewed and rejected	The wasted (and unfunded) effort of managing peer review for articles that are ultimately not accepted is kept to a minimum.
	Peer review is a monopoly of a small group of few old, white men	Peer review based only on scientific soundness
	Very high competition and additional pressure / load on researchers, particularly postdocs	Cascade journals that accept what has been rejected from high selective journals
	Paper selection is made based on newsworthiness rather than scientific quality - skewing the work of reviewers	Scientific quality and soundness more important than relevance, novelty or topicality

Annex VII - Academic qualifications criteria and career path in Albania

Table 13: Criteria for academic qualification in Albania prior & post 2015[171]

Academic Qualifications Criteria				
Criteria	Legal framework	Scientific Grade: Doctor of Science	Academic Title: Associate Professor	Academic Title: Professor
Duration in years	Regulatory framework prior to legislative changes of 2015	No less than 3 and no more than 5	At least 3 years after obtaining the grade: Doctor of Science	At least 5 years of teaching experience or 7 for part time lecturers; it is not a requirement to hold Associated Professor title but need to have at least 1 year research experience outside Albania and are proficient in one of the languages: English, Italian, French, German, Spanish or Russian
	Regulatory framework following the new law on higher education No. 80/2015 - not yet approved	No less than 3 and no more than 5	At least 5 years after obtaining the grade: Doctor of Science	At least 5 years after receiving the academic title: "Associate professor"
Publication of articles at the national level	Regulatory framework prior to legislative changes of 2015	2 published articles in peer-reviewed academic journal with ISSN in Albania	3 articles or reviews in national journals with editorial board	4 articles or reviews in national journals with editorial board

[171] Source: Authors based on review of regulatory framework.

Academic Qualifications Criteria				
Criteria	Legal framework	Scientific Grade: Doctor of Science	Academic Title: Associate Professor	Academic Title: Professor
	Regulatory framework following the new law on higher education No. 80/2015 - not yet approved	1 published articles in peer-reviewed academic journal	2 published articles in peer-reviewed academic journals or alternative: Patents, software, datasets depending on discipline	3 published articles in peer-reviewed academic journals or alternative: Patents, software, datasets depending on discipline
Publication of articles at the international level	Regulatory framework prior to legislative changes of 2015	1 published articles in peer-reviewed international academic journal with impact factor	2 articles in international journal with editorial board with at least 1 article with impact factor	4 articles in international journal with editorial board with at least 2 articles with impact factor
	Regulatory framework following the new law on higher education No. 80/2015 - not yet approved	2 published articles with impact factor; Each HEI is responsible for setting the necessary criteria	2 published articles with impact factor in internationally recognized academic journals in EU, OECD or G20 countries;	3 published articles with impact factor in internationally recognized academic journals in EU, OECD or G20 countries;
Monographs	Regulatory framework prior to legislative changes of 2015	Submission of doctoral thesis in Albanian	N/A 1 monograph in foreign language published with ISBN may substitute for 6 scientific articles	N/A 1 monograph in foreign language published with ISBN may substitute for 6 scientific articles at international level
	Regulatory framework following the new law on higher education No. 80/2015 - not yet approved	Finalisation and submission of doctoral thesis in Albanian and English or one of the EU official languages; HEI is responsible for setting other criteria	1 monograph in Albanian Language + peer review by one Albanian professor & 1 from EU, OECD, G20 countries or 1 monograph published in EU, OECD, G20 countries in one of the EU official languages	2 monographs in Albanian Language + peer review by one Albanian professor & 1 from EU, OECD, G20 countries or 1 monograph published in EU, OECD, G20 countries in one of the EU official languages

Academic Qualifications Criteria				
Criteria	Legal framework	Scientific Grade: Doctor of Science	Academic Title: Associate Professor	Academic Title: Professor
Conferences	Regulatory framework prior to legislative changes of 2015	1 presentation in national conference; 2 presentations in international conferences in EU, OECD with proceedings and ISBN	8 presentations in conferences; at least 5 in international conferences with proceedings	15 presentations in conferences; at least 8 in international conferences with proceedings
	Regulatory framework following the new law on higher education No. 80/2015 - not yet approved	1 presentation in national conference; 2 presentations in international conferences in EU, OECD or G20 countries	Refer to Recommended	Refer to Recommended
Language	Regulatory framework prior to legislative changes of 2015	English Language, level C1	No requirements	
	Regulatory framework following the new law on higher education No. 80/2015 - not yet approved	Proficiency in one of the 5 official languages of the EU	Proficiency in one of the 5 official languages of the EU	Proficiency in one of the 5 official languages of the EU
Teaching workload	Regulatory framework prior to legislative changes of 2015	N/A; HEI may set teaching criteria	No requirements on teaching workload	

Academic Qualifications Criteria				
Criteria	Legal framework	Scientific Grade: Doctor of Science	Academic Title: Associate Professor	Academic Title: Professor
	Regulatory framework following the new law on higher education No. 80/2015 - not yet approved	N/A; HEI may set teaching criteria	Full teaching workload for at least 3 years;	Chair of at least one teaching module for 5 years
Employability	Regulatory framework prior to legislative changes of 2015	No requirements	At least 3 years experience in teaching or 5 years as guest lecturers	
	Regulatory framework following the new law on higher education No. 80/2015 - not yet approved	No requirements	To be full time employed at a lecturer for at least 5 years or part time lecturer for at least 7 years	To be full time employed at a lecturer for at least 8 years or part time lecturer for at least 10 years
Recommended, but not obligatory	Regulatory framework prior to legislative changes of 2015	International research experience	No requirements	No requirements
	Regulatory framework following the new law on higher education No. 80/2015 - not yet approved	International research experience: fellowships, mobility, international project participation	Participation in conferences; scientific boards; scientific projects; mentorship; peer review, doctoral thesis supervision; academic spin-offs; knowledge transfers; successful grant applications at national & international level	Participation in conferences; scientific boards; scientific projects; mentorship; peer review, doctoral thesis supervision; academic spin-offs; knowledge transfers; successful grant applications at national & international level

Academic Qualifications Criteria				
Criteria	Legal framework	Scientific Grade: Doctor of Science	Academic Title: Associate Professor	Academic Title: Professor
Academic progress after obtaining academic titles	Regulatory framework prior to legislative changes of 2015	Working towards obtaining academic title: Associated Professor	No requirements/recommendations	
	Regulatory framework following the new law on higher education No. 80/2015 - not yet approved	Working towards obtaining academic title: Associated Professor	*A - for Teaching* path within 5 years: 2 articles in peer-reviewed journals at national level & 1 in peer reviewed journals in EU, OECD or G20 countries; *B - Research Path* within 5 years: 2 articles in peer-reviewed at national level and 3 articles in international peer reviewed journals in one of the EU, OECD or G20 countries	

Annex VIII: Mapping science communication in Albania – Data

Table 14: Mapping of science communication basic practices in Albanian universities

#	Public Higher Education Institutions	Website Language	Online Social Media	Communication/PR Office	Scientific Research Online Section/Blog	Publication preprint PhD Thesis	Other communication tools
1	University of Tirana	Albanian	Facebook	*Directory of Communication*: International Relations, Public Relations & Student Relations	Under construction	List and full preprint publication of completed PhD Thesis - dedicated section "Doctorate"	Email Newsletter; dedicated section for PhD publications: http://www.doktoratura.unitir.edu.al/
1.1	Faculty of Economy	Albanian	Facebook; Twitter; LinkedIn; YouTube channel; Instagram	NO - Not specified in the official institutional organogram; Information Office	No	List of completed doctoral thesis/Not published online preprint	Twitter (last updated October 2016); LinkedIn not active;
1.2	Faculty of Law	Albanian	Facebook	NO; only Information Office	No	No direct link	
1.3	Faculty of Natural Sciences	Albanian	None	NO - Not specified in the official institutional organogram;	Science Bulletin - published preprint online all editions; List of Scientific Publication	Yes, direct link + interlinked to UT "Doctorate"	
1.4	Faculty of Social Sciences	Albanian	Facebook	NO - Not specified in the official institutional organogram;	No	Yes, published per department and interlinked with UT website	The website does not work - August 2017
1.5	Faculty of Foreign Languages	No website	No	Cannot say	No online presence	Published at UT webpage as preprint	UT webpage lists as a separate Faculty; no official page online; included within the Faculty of History & Philology
1.6	Faculty of History and Philology	Albanian	Facebook; YouTube channel	NO - Not specified in the official institutional organogram;	No	Yes, published per department and interlinked with UT website	No content in YouTube channel; Newsroom section on website, but not dedicated to scientific

							research
1.7	Institute of European Studies		Facebook	NO - Not specified in the official institutional organogram;		List published at UT webpage "Doctorate"	
1.8	Institute of Nuclear Physics		Facebook	NO - Not specified in the official institutional organogram;			
2	Polytechnic University of Tirana	Albanian; English	None	*Directory of Communication*: International Relations; Information & Statistics; Career Counselling	Yes, Scientific Research; Technical Science Bulletin	Yes, preprint full publications online	Partial information in English; Partial updates published under scientific research; short list of projects
3	Agricultural University of Tirana	Albanian; English	Facebook	Directory for Information & Knowledge Transfer: Office for Business Relations; Sector for International Relations and Public Relations - under Rector's line management	Yes, *Scientific Research* Section: Doctorate; Research Priorities; Journals; Scientific Conferences, Projects; IR; Publications	Yes, preprint full publications online;	None of the pages is translated into English; Only titles; Scientific Research section partial information provided; Albanian Journal of Agricultural Sciences (AJAS - *open access*); Second Journal - subscription fee; News but not necessary focused on research
4	University “Luigj Gurakuqi” Shkodër	Albanian; English	Facebook; YouTube channel	NO - Not specified in the official institutional organogram;	Yes, *Scientific Bulletin* of Economic Sciences; Scientific Bulletin of Social Sciences; *Publication* section	Doctorate in Albanian Language - no online publication of thesis	Mostly BA and MA studies; Only one doctoral programme
5	University “Aleksandër Xhuvani” Elbasan	Albanian	Facebook	NO; not specified	No	No doctoral programmes	Only BA and MA studies

6	University“ Fan S. Noli” Korçë	Albanian; English	Facebook	Directory for Information & Knowledge Transfer; Sector for International Relations and Public Relations under the line management of Directory for Human Resources and Communication	No, but projects and partnership section; *Science Bulletin* - preprint available online	No doctoral programmes	Only BA and MA studies; Website completed with detailed and up to date information; Notifications and details on scientific conferences
7	University “Ismail Qemali” Vlorë	Albanian	Facebook	Office for Public Relations; Office for Communication and Publication of scientific work;	Scientific Research section - under construction; *Science Bulletin* - preprint available online	No doctoral programmes	Only BA and MA studies
8	University “Eqrem Çabej” Gjirokastër	Albanian	Facebook	Specialist for Public Relations under the Directory of Legal Affairs and Human Resources	Scientific Publications in two bulletins: Mathematics and Natural Sciences; Social, economic & educational sciences	No doctoral programmes	Only section titles in English; the bulletins are not available online as preprint
9	University "Aleksandër Moisiu", Durrës	Albanian	Facebook	*Directory for Public Communication* under the line management of the Chancellor	*Scientific Section*: Priorities, Scientific Conferences, Publications, Newsletter; Projects, Cooperation	No doctoral programmes	Only BA and MA studies; not all section completed; updated info an activities - newsroom; Interdisiplinary Journal of Research and Development - open access all articles 2016 the latest
10	University of Arts Tirana	Albanian; English	Facebook; YouTube channel; LinkedIn	Sector for Public Relations	N/A	No doctoral programmes	

11	University of Sports Tirana	Albanian	Facebook; YouTube channel; LinkedIn	Section for Public Relations under the line management of the Directory for External Relations, Projects and IT	*Scientific Research* section: scientific conference, projects, publication, journal and activities	Doctorate section is empty - no publication available; Institute of Scientific Research in Sports	Only section titles in English; Journal articles published by UST open access online all editions
12	University of Medicine Tirana	Albanian	Facebook; YouTube channel; LinkedIn	Directory of Curricula and Academic Management - *Sector for Communication and External Relations*	Scientific Research section: Doctorates, Publications, Conferences, Projects	Yes, preprint full publications online	Only section titles in English; The Albanian Journal of Medical and Health Science - open access online full publications http://ajmhs.umed.edu.al/; Newsroom on current scientific events
13	Centre for Albanological Studies	Albanian	Facebook	NO; not specified	Included under each institution; Publications	Yes, preprint full publications online	Quantitative report on research publications;
16	Academy of Security	Albanian		No, not specified in the official structure of the Academy	Scientific Research section: Publication, conferences, projects	Scientific Research Centre; no doctoral programmes	Journal Police and Security - full publications open access online
#	Private Higher Education Institutions	Language	Online Social Media	Communication/PR Office	Scientific Research Online Section/Blog	Publication preprint PhD Thesis	Other communication tools
1	New York University of Tirana	English, Albanian	Facebook, YouTube channel, Instagram	Not specified; Office for International Relations; Marketing Office	Project and Research Section - updated with project info and results;	No, only doctoral programme and staff available online	Email newsletter; Social Sciences Research Centre
2	Albanian University	English, Albanian	Facebook, YouTube channel, Instagram	Information Office; External Relations Office	Scientific Research section: doctorate, conferences, projects, partnerships	No, not possible to find the online link to preprints of PhD thesis	Television channel; OPTIME journal - not available online; Office for Research and Publications; University Publishing House

3	Our Lady of Good Counsel Catholic University	Italian, English, Albanian	Facebook, Twitter, YouTube, LinkedIn	Directory of Marketing and Public Relations	Scientific Research section dedicated to the European Scientific Centre on Peace, Integration and Cooperation	List of PhD thesis, only abstracts available online	No specific information on journals or conferences
4	European University of Tirana	Albanian, English	Facebook, YouTube, Instagram	*Directory of Marketing and Public Relations*: Event Management, Communication and Design, Reporting and Media Affairs Specialist	Scientific Research Section: Projects, International Relations, Erasmus+; Scientific News and Activities; Research with Impact - UET Centre	All list and full preprints of doctoral thesis published	MAPO Media Affiliations - daily national newspaper - weekly section on MAPO Research and MAPO EDU; Affiliation with European Institute Pashko; 3 journals; Polis and Economics available online open access; List of staff publications and conferences available online; University Publishing House - UET Press
5	Polis University	Albanian, English	Facebook, YouTube channel, LinkedIn, Twitter	Information Office	Scientific Research and Development: Research, Conferences, Projects, Publications, Partnerships	Not reachable	Faculty for Research and Development: Scientific and Applied Research; Affiliation to CoPLAN; MetroPOLIS, MAD Center, Polis Press
6	Epoka University	English, Albanian	Facebook, Twitter, YouTube, LinkedIn	Media and Public Relations	Scientific Centers: European Research and Architecture and Engineering Centre	Not reachable	Journals: Journal of European Social Research; Advances in Architecture and Engineering; European Studies Journal - all open access online; Applied Statistics and Econometrics - ip

Annex IX: Social Sciences Presence in the mainstream and online media in Albania

Table 15: Social Science in the media in Albania[172]

Mainstream Media (Television & Newspapers)					
#	Media	Science Section	Social Scientists Presence	Coverage	Other
1	Albanian Radio and Television - rtsh	Technology and Science	In the role of public intellectuals for talk shows; political debates; expert for section: Social issues; Economy	Translated news from around the globe; Dedicated programmes to education and science - budgeting issues - this is as part of being public service media	Not possible to identify contacts for science journalist/reporter or contact details of the unit
2	Top Channel	HI Tech	In the role of public intellectuals for talk shows; political debates; expert for section: Social issues; Economy; morning shows include topics related to science in Albania and invite experts - usually classified as advertisement / fee charges	Afternoon in Top Channel regularly invites Social Scientists to interpret current events or scientific news from around the globe; Top Show organised dedicated shows to scientific topics or invites panel of experts/researchers to discuss particular issues: integration, inflation, extremism	Not possible to identify contacts for science journalist/reporter or contact details of the unit
3	Klan TV	No	In the role of public intellectuals for talk shows; political debates;	Political talk show OPINION regular panel with political scientists and economy experts; Rudina - afternoon show invites psychologist and sociology researchers to interpret daily events/trends	

[172] Source: Authors' elaboration based on content analysis research of main mediums.
Media groups and platforms such as Digitalb & Tring offer thematic channels such as History, Documentary, Explorer, Science - materials are translated and prepared in Albanian by using purchase of publication rights from other channels/platforms.

4	Vizion +	Innovation: Technology and Science	Economy expert invited on the show KAPITAL or social scientists invited in the morning show to talk about political events	Translated news from around the globe;	Not possible to identify contacts for science journalist/reporter or contact details of the unit
5	ABC News	No	Invited as public intellectuals or experts for interviews on special topics		24 hours news reporting
6	Ora News	Technology	Show: Eco-politics invites researchers in the capacity of experts to discuss issues related to economy and politics	Translated news from around the globe;	24 hours news reporting
7	News 24	No	Doing Economy Show invites experts also Clinique at 24 - medical and health expert	Linked to balkanweb.com	24 hours news reporting
8	Scan TV	Technology	Experts in economy, innovation, finances, technology always part of the shows, programme, news section	Thematic channel dedicated to economy and finances news and affairs	Dedicated to economy and finances
9	Panorama Newspaper	No	Op-Ed by social scientists on current political events in Albania, region or globally		Psychology Journal and Curiosities
10	Shekulli Newspaper	No	Op-Ed by social scientists on current political events in Albania, region or globally		
11	MAPO Newspaper	Book & Ideas; Planet;	Op-Ed by social scientists on current political events in Albania, region or globally	Weekly section on MAPO Education supplement and weekly section on MAPO Research supplement	Online first and then print
12	Gazeta Shqiptare	No	Op-Ed by social scientists on current political events in Albania, region or globally		
13	Shqiptarja.com	No	Commentaries	A section on Health and culture	Linked to Report TV, 24 hour news

Online media platforms					
#	Media	Science Section	Social Scientists Presence	Coverage	Other
1	Balkanweb.com	Technology	Op-Ed and commentaries by social scientists on current political events in Albania, region or globally	Translated news from around the globe;	Linked to News24 TV channel
2	Reporter.al	No	Commentaries	Investigative and analysis; use of studies and expert interviews in their reports	
3	Exit.al	No	Op-Ed and commentaries by social scientists on current political events in Albania, region or globally	It is dedicated to current affairs in Albania - analysis and investigative; use of studies and expert interviews in their reports	
4	Politiko.al	No	Op-Ed and commentaries by social scientists on current political events in Albania, region or globally		
5	Tiranapost.al	Technology	No op-ed or commentaries by experts	Translated news from around the globe; mainly provocative news	Technology and health
6	Lapsi.al	Planet	Few commentaries by experts - highly politically charged	Translated news from around the globe; mainly provocative news	
7	Syri.net	No	Few commentaries by experts - highly politically charged		Health section

ANNEX X – GUIDELINES FOR IN-DEPTH INTERVIEWS

I. *SCIENTIFIC INSTITUTIONS (UNIVERSITIES AND RESEARCH INSTITUTES)*

- Communicating scientific research – current practices and crucial obstacles
- Academic publication – publishing and the point-based system
- Alternative forms of publishing and communicating scientific research – use, obstacles, potential (research in public policy, websites, blogs)
- Role and influence of scientific research on the process of creating, monitoring and analysing public policies. Current state of affairs in terms of social relevance of scientific-research work in Serbia
- Current potential of academic institutions to serve as a service for conducting research for the needs of state institutions
- Media presentation and state of affairs in public visibility of scientific research
- (trainings in communication and presentation skills)
- Resources in academic/scientific institutions – existences of PR
- Recommendations for improvement

II. *MEDIA*

- Communicating scientific research – current practices and key obstacles of cooperation with researchers / scientific institutions
- Capacities for communicating scientific research – are there specialized media?
- Alternative forms of publishing and communicating scientific research – use, obstacles, potential (research in public policy, websites, blogs)
- Media presentation and state of affairs in public visibility of scientific research – usefulness, obstacles and potentials of research results to be used by the Serbian media
- Journalists' competences and media resources Researchers' competences (trainings in communication and presentation skills)
- Who is the audience? Public interest in scientific research
- Resources in academic/scientific institutions – is there a PR service?
- Recommendations for improvement

III. NGOs

- Communicating scientific research – current practices and key obstacles of cooperation with researchers / scientific institutions
- Role and influence of scientific research on the process of creating, monitoring and analysing public policies. Current state of affairs in terms of social relevance of scientific-research work in Serbia
- Current potential of academic institutions to serve as a service for conducting research for the needs of state institutions
- Communicating public policy research – examples of good practice for communicating scientific research
- Potential for cooperation with scientific institutions and examples of good practice
- Media presentation and state of affairs in public visibility of scientific research
- Researchers' competences (trainings in communication and presentation skills)
- NGO resources in communicating scientific results – is there a PR service?
- Recommendations for improvement

IV. STATE INSTITUTIONS

- Communicating scientific results – current practices of cooperation with researchers / scientific and academic institutions and key obstacles
- Role and influence of scientific research on the process of creating, monitoring and analysing public policies. Current state of affairs in terms of social relevance of scientific-research work in Serbia
- Current needs of state institutions for conducting more socially and policy relevant scientific research
- Communicating scientific research – examples of good practice
- Current examples and future potential for cooperation between scientific and state institutions
- Communicating public policy research – examples of good practice for communicating scientific research
- Researchers' competences
- Resources in state institutions – employees in charge of communication with researchers and scientific/academic institutions
- Media presentation and state of affairs in public visibility of scientific research
- Recommendations for improvement

ANNEX XI – DETAILED SAMPLE OF INFORMATIVE IN-DEPTH INTERVIEWS

NO.	NAME	POSITION	ORGANISATION	DATE
1.	Mihailo Đukić	Local Coordinator at RRPP	Regional Research Promotion Programme RRPP Western Balkans	8.9.
2.	Jelena Lončar, PhD	Assistant	Faculty of Political Sciences, University of Belgrade	5. 9.
3.	Srđan Prodanović, PhD	Research Associate	Institute for Philosophy and Social Theory, University of Belgrade	10.9.
4.	Pero Šipka	Director	Center for Evaluation in Education and Science	11.9.
5.	Prof. Dr. Predrag Bjelić	Professor	Economic Faculty, University of Belgrade; Scientific Society of Economists	20.9.
6.	Milica Ševkušić	Senior Librarian; Head of Librarians' Section & eIFL Open Access country coordinator in Serbia	Institute of Technical Sciences of the Serbian Academy of Sciences & Arts; Serbian Association of Institutes	29. 8.
7.	Ivan Sekulović	Manager	Social Inclusion and Poverty Reduction Unit (SIPRU)	6.9.
8.	Biljana Mladenović	Economic Analyst and Adviser	Social Inclusion and Poverty Reduction Unit (SIPRU)	6.9.
9.	Nikola Tanić	Deputy Minister for Science	Ministry for Education, Science and Technological Development of Serbia	12.9.
10.	Ninoslav Kekić	Acting Assistant Director	Sector for quality policy quality assurance, Public Policy Secretariat for Serbia	19.9.
11.	Ivana Đurić	/	Communication and Training Sector, Ministry of European Integration	18.9.
12.	Slobodan Milivojević	Advisor	Commissioner for Protection of Equality	14.9.
13.	Aleksandar Bogdanović	Coordinator of EMinS' Research Forum	European Movement in Serbia (EMinS)	21.9.
14.	Ana Aleksić Mikić	Researcher	FREN	21.9.
15.	Tanja Maksić	Programme Coordinator	Balkan Investigative Reporting Network (BIRN)	5.9.
16.	Sandra Gucijan	Journalist	Politika	18.9.
17.	Mark Losoncz	Researcher	Regional Scientific Center of the Institute for Philosophy and Social Theory	10.9.
18.	Kristina Ratz	Researcher	Regional Scientific Center of the Institute for Philosophy and Social Theory	10.9.
19.	Prof Dr. Đorđe Pavićević	Associate Professor	Faculty of Political Sciences, University of Belgrade	14.9.
20.	Jovan Zubović	Director	Institute of Economic Sciences	13.9.
21.	Ivan Umeljić	Associate	Centre for the Promotion of Science	15.9.

ANNEX XII - JOURNALISM AT UNIVERSITY AND VOCATIONAL LEVEL IN SERBIA

UNIVERSITY	DEGREE LEVEL AND NO. OF STUDENTS	PROGRAMME
University of Belgrade, Faculty of Political Sciences	Bachelor, 160	Journalism
	Master, 25	Journalism
	PhD, 13	Culture and media
Faculty of Philosophy, University of Novi Sad	Bachelor, 70	Journalism
	Master, 30	Communicology
	PhD, 10	Interdisciplinary Doctoral Studies in the Field of Social Sciences and Humanities
Faculty of Philosophy, University of Niš	Bachelor, 50	Journalism
	Master, 25	Journalism
	PhD,	Media and Society
Faculty of Culture and Media, University John Naisbitt	Bachelor, 100	Journalism
	Master, 50	Management in Culture and Media, Journalism and PR
	PhD, 9	PhD in Culture and Media
Faculty of Media and Communication, Singidunum University	Bachelor, 80	Journalism and Media Studies
	Master, 50	Communication – Global Media Culture
	PhD, 10	Transdisciplinary Studies of Contemporary Arts and Media
Faculty of Sport University "Union – Nikola Tesla", Belgrade	Bachelor, 40	Sport Journalism

Journalists' Association of Serbia	3-months course (n.a.)	Journalism Web Journalism Video Journalism Web competences, entrepreneurship and journalism for disabled persons
Centre for the Promotion of Science	3-months course 30	**Science Journalism** **(single event from 2014)**

ANNEX XIII - ACADEMIC QUALIFICATIONS CRITERIA AND CAREER PATH IN SERBIA

Table 17: Criteria for academic qualification in Serbia[173]

Research Title	Equivalent Teaching Title	Requirements	Duration	Re-election	Career Advancement
"Istraživač pripravnik" – Research Trainee	*"Demonstrator"* – graduate student instructor/ teaching assistant	MA title with grade at least 8 of 10; enrolled at a PhD programme (in Serbia).	3 years	No	/
"Istraživač saradnik" – Research Assistant	*"Saradnik u nastavi"* – Teaching Fellow	BA and MA title with grade at least 8 of 10; approved PhD thesis proposal (year 3 i.e. advanced level of PhD studies); one peer-reviewed article published (national or international)	3 years	No	/
"Naučni saradnik" – Research Associate	*"Docent"* – Assistant Professor	Obtained PhD; publications; „overall performance shows the ability for independent scientific work"	5 years	*Unlimited* - Candidates can be re-elected if they satisfy minimal criteria set for the present rank in the last 5 years	**Career advancement**: Candidates can progress to a higher rank if they satisfy minimal criteria set for the higher rank in the last 5 years **Early career advancement**: exceptionally, candidates can progress to a higher rank after no less than 3 years, if they achieved results 50% above the minimal standards in that period

[173] Source: Pravilnik o postupku, načinu vrednovanja i kvantitativnom iskazivanju naučnoistraživačkih rezultata istraživača ("Sl. glasnik RS", br. 24/2016 i 21/2017), http://www.mpn.gov.rs/wp-content/uploads/2017/03/Pravilnik-2017-preciscen-tekst.pdf.

"Viši naučni saradnik" – Senior Research Associate	*Vanredni profesor* – Associate Professor	Obtained PhD; publications; „candidate's overall performance makes a contribution to the scientific discipline"	5 years	*Unlimited* - Candidates can be re-elected if they satisfy minimal criteria set for the present rank in the last 5 years	**Career advancement**: Candidates can progress to a higher rank if they satisfy minimal criteria set for the higher rank in the last 5 years **Early career advancement**: exceptionally, candidates can progress to a higher rank after no less than 3 years, if they achieved results 50% above the minimal standards in that period
"Naučni savetnik" – Principal Research Fellow	*Redovni profesor* – Full Professor	Obtained PhD; publications; „candidate's overall performance makes a significant contribution to the scientific discipline"; mentor on at least 1 PhD thesis; manage at least 1 project.	perma nent	/	/
Revoking Titles:	a. in the case that new evidence show that the candidate in fact did not meet the criteria at the time of election; b. in the case of plagiarism or other forms of ethical issues (for instance of falsely self-attributed articles etc.)				

Table 18: Requirements for Obtaining Scientific Ranks in Social Sciences and Humanities in Serbia[174]

QUALITATIVE REQUIREMENTS		
originality, impact, international scientific cooperation, project management/scientific policy management (participation in scientific bodies, committees etc.), professional recognitions and awards, keynote lectures at international conferences or invited lectures		
QUANTITATIVE REQUIREMENTS		
Scientific rank	**Since the first election into a scietific rank, the candidate is required to obtain the minimal required number of mandatory points, from the following categories*:**	**Nr. of mandatory points**
RESEARCH ASSOCIATE	*Nr. of total points required*	***16***
	Of those, Nr. of points from: M10+M20+M31+M32+M33+M41+M42+M43+M44+M45+M51+M52≥	10
	Of those, Nr. of points from: M11+M12+M21+M22+M23+M24+M31+M41+M42≥	7
SENIOR RESEARCH ASSOCIATE	*Nr. of total points required*	***48***
	Of those, Nr. of points from: M10+M20+M31+M32+M33+M41+M42+M43+M44+M45+M51+M52+M52+M53+M54+M61≥	38
	Of those, Nr. of points from: M11+M12+M21+M22+M23+M24+M31+M41+M42≥	28
PRINCIPAL RESEARCH FELLOW	*Nr. of total points required*	***70***
	Of those, Nr. of points from: M10+M20+M31+M32+M33+M41+M42+M43+M44+M45+M51+M52 +M53+M54+M61≥	54
	Of those, Nr. of points from: M11+M12+M21+M22+M23+M24+M31+M41+M42≥	40

[174] For further clarification on M categories and evaluation criteria, see Table 5.

Example of the evaluation form required for the progression to higher scientific rank, submitted by home faculty/institute: „Summary Report On Candidate For Acquisition Of Scientific Title“ (in Serbian „Rezime izveštaja o kandidatu za sticanje naučnog zvanja“)

Прилог 5.

Назив института – факултета који подноси захтев:

РЕЗИМЕ ИЗВЕШТАЈА О КАНДИДАТУ ЗА СТИЦАЊЕ НАУЧНОГ ЗВАЊА

I Општи подаци о кандидату

Име и презиме:
Година рођења:
ЈМБГ:
Назив институције у којој је кандидат стално запослен:

Дипломирао-ла: година: факултет:
Магистрирао-ла: година: факултет:
Докторирао-ла: година: факултет:
Постојеће научно звање:
Научно звање које се тражи:
Област науке у којој се тражи звање:
Грана науке у којој се тражи звање:
Научна дисциплина у којој се тражи звање:
Назив научног матичног одбора којем се захтев упућује:

II Датум избора-реизбора у научно звање:

Научни сарадник:
Виши научни сарадник:

III Научно-истраживачки резултати (прилог 1 и 2 правилника):

1. Монографије, монографске студије, тематски зборници, лексикографске и картографске публикације међународног значаја (уз доношење на увид) (М10):

	број	вредност	укупно
М11 =			
М12 =			
М13 =			
М14 =			
М15 =			
М16 =			
М17 =			
М18 =			

2. Радови објављени у научним часописима међународног значаја (М20):

	број	вредност	укупно
М21 =			
М22 =			
М23 =			
М24 =			
М25 =			
М26 =			
М27 =			
М28 =			

3. Зборници са међународних научних скупова (М30):

	број	вредност	укупно
М31 =			
М32 =			
М33 =			
М34 =			
М35 =			
М36 =			

4. Националне монографије, тематски зборници, лексикографске и картографске публикације националног значаја; научни преводи и критичка издања грађе, библиографске публикације (М40):

	број	вредност	укупно
M41 =			
M42 =			
M43 =			
M44 =			
M45 =			
M46 =			
M47 =			
M48 =			
M49 =			

5. Часописи националног значаја (M50):

	број	вредност	укупно
M51 =			
M52 =			
M53 =			
M54 =			
M55 =			
M56 =			

6. Зборници скупова националног значаја (M60):

	број	вредност	укупно
M61 =			
M62 =			
M63 =			
M64 =			
M65 =			
M66 =			

7. Магистарске и докторске тезе (M70):

	број	вредност	укупно
M71 =			
M72 =			

8. Техничка и развојна решења (М80)

	број	вредност	укупно
М81 =			
М82 =			
М83 =			
М84 =			
М85 =			
М86 =			

9. Патенти, ауторске изложбе, тестови (М90):

	број	вредност	укупно
М91 =			
М92 =			
М93 =			

IV Квалитативна оцена научног доприноса (прилог 1 правилника):

1. Показатељи успеха у научном раду:

(Награде и признања за научни рад додељене од стране релевантних научних институција и друштава; уводна предавања на научним конференцијама и друга предавања по позиву; чланства у одборима међународних научних конференција; чланства у одборима научних друштава; чланства у уређивачким одборима часописа, уређивање монографија, рецензије научних радова и пројеката)

2. Ангажованост у развоју услова за научни рад, образовању и формирању научних кадрова:

(Допринос развоју науке у земљи; менторство при изради мастер, магистарских и докторских радова, руковођење специјалистичким радовима; педагошки рад; међународна сарадња; организација научних скупова)

3. Организација научног рада:

(Руковођење пројектима, потпројектима и задацима; технолошки пројекти, патенти, иновације и резултати примењени у пракси; руковођење научним и стручним друштвима; значајне активности у комисијама и телима Министарства за науку и технолошки развој и телима других министарстава везаних за научну делатност; руковођење научним институтцијама)

4. ***Квалитет научних резултата:***

(Утицајност; параметри квалитета часописа и позитивна цитираност кандидатових радова; ефективни број радова и број радова нормиран на основу броја коаутора; степен самосталности и степен учешћа у реализацији радова у научним центрима у земљи и инхостранству; допринос кандидата реализацији коауторских радова; значај радова)

V Оцена комисије о научном доприносу кандидата са образложењем:

ПРЕДСЕДНИК КОМИСИЈЕ

ANNEX XIV – Mapping science communication in Serbia – Data

Table 19: Mapping of science communication basic practices at Serbian universities

#	Public Higher Education Institutions	Website Language	Online Social Media	Communication/PR Office	Scientific Research Online Section/Blog	Other communication tools
1	University of Belgrade	Serbian; English	Facebook; Twitter; LinkedIn	*Information Center*	Yes, Scientific Research and Expert Activities, not updated regularly	News portal; Youtube channel
2	University of Novi Sad	Serbian; English; Chinese	Facebook; Twitter	*International Relations Office*	Yes, Science: PhD studies, Scientific projects, conferences;	Android application *University of Novi Sad*
3	University of Niš	Serbian; English	Facebook; LinkedIn	*Center for International Relations*	Yes, Science and Research section	The application "NPAO" (Scientific publications of academic staff)
4	University of Kragujevac	Serbian; English		*Sector for international relations and projects monitoring;* *International Projects Office;* *UNIC - University*	Yes, Research and innovation section	You tube channel of the Center for career development and student counselling; University journals

				information center		
5	State University of Novi Pazar	Serbian; English		*International Relations Office*	The page is not translated into English	Download section with publications
6	University of Arts, Belgrade	Serbian; English; French	n.a.	*International Relations Office*	n.a.	n.a.
7	University of Priština (in KosovskaMitrovica)	Serbian; English	Facebook	*International Relations Office*	Yes, Scientific Research section	University Brochure; Guide on Academic Recognition;
8	University of Defence, Belgrade	Serbian; English	Facebook; Youtube	n.a.	Under construction	News section - not updated

#	Private Higher Education Institutions	Language	Online Social Media	Communication/PR Office	Scientific Research Online Section/Blog	Other communication tools
1	Singidunum University, Belgrade	Serbian; English	Facebook; YouTube; Twitter	*Marketing and PR Service; International Office*	Yes, Projects, Research & Conferences section	Android application *Singidroid 3*

2	University John Naisbitt (former Megatrend), Belgrade	Serbian; English	Facebook; YouTube; Instagram; LinkedIn	*International Cooperation Department;*	Yes, Research section: international scientific journal for applied economics (issued in Serbian and English) "Megatrend Review";	News and information section
3	Union University, Belgrade	Serbian	n.a.	n.a.	n.a.	n.a.
4	University “Union – Nikola Tesla”	Serbian; English; Russian; Arabic	n.a.	n.a.	n.a.	n.a.
5	Metropolitan University, Belgrade	Serbian; English	Facebook; Twitter; Youtube; LinkedIn	n.a.	Yes, Conferences and Projects section (only in Serbian)	Skype; News section (only in Serbian)
6	Alfa University (former BraćaKarić), Belgrade	Serbian	Facebook; Twitter; Youtube; LinkedIn	n.a.	n.a.	News section (only in Serbian)

7	University Educons, Sremska Kamenica	Serbian; English	Facebook; Youtube	n.a.	Yes, Science section (only in Serbian)	Email newsletter; Webinar application
8	Eurpoean University (Evropski Univerzitet), Belgrade	Serbian	Facebook; Youtube	*Center for International Relations;*	n.a.	Brochure; News section - not updated (only in Serbian)
9	International University of Novi Pazar	Serbian	Facebook; Youtube	n.a.	n.a.	n.a.
10	University Business Academy, Novi Sad	Serbian; English	LinkedIn; Youtube	*Center for International Cooperation*	Yes, Research and Development section: research projects, journals	News section