



Deliverable D7.3 - Policy report on open peer review, impact measurement and novel dissemination practices

OPENingUP new methods, indicators and tools for peer review, impact measurement and dissemination of research results

Project acronym: OpenUP
Grant Agreement no. 710722

Deliverable information	
Deliverable number and name	Deliverable D7.3 - Policy report on open peer review, impact measurement and novel dissemination practices
Submission date	31 August 2018
Delivery	31 August 2018
Work Package	WP7
Lead Partner for deliverable	PPMI
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Reviewers	Michela Vignoli, AIT; Birgit Schmidt, Edit Görögh, UGOE; Tony Ross-Hellauer Know-Center; Saskia Woutersen-Windhouwer, UvA.
Approved by	All partners
Dissemination level	Public
Version	1

Table 1. Document revision history

Issue Date	Version	Comments
10 August 2018	0.1	Final draft of the report release by PPMI for the review by the OpenUP consortium
31 August 2018	1	The final version with comments from reviewers integrated.

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OpenUP is a project partially funded by the European Union.

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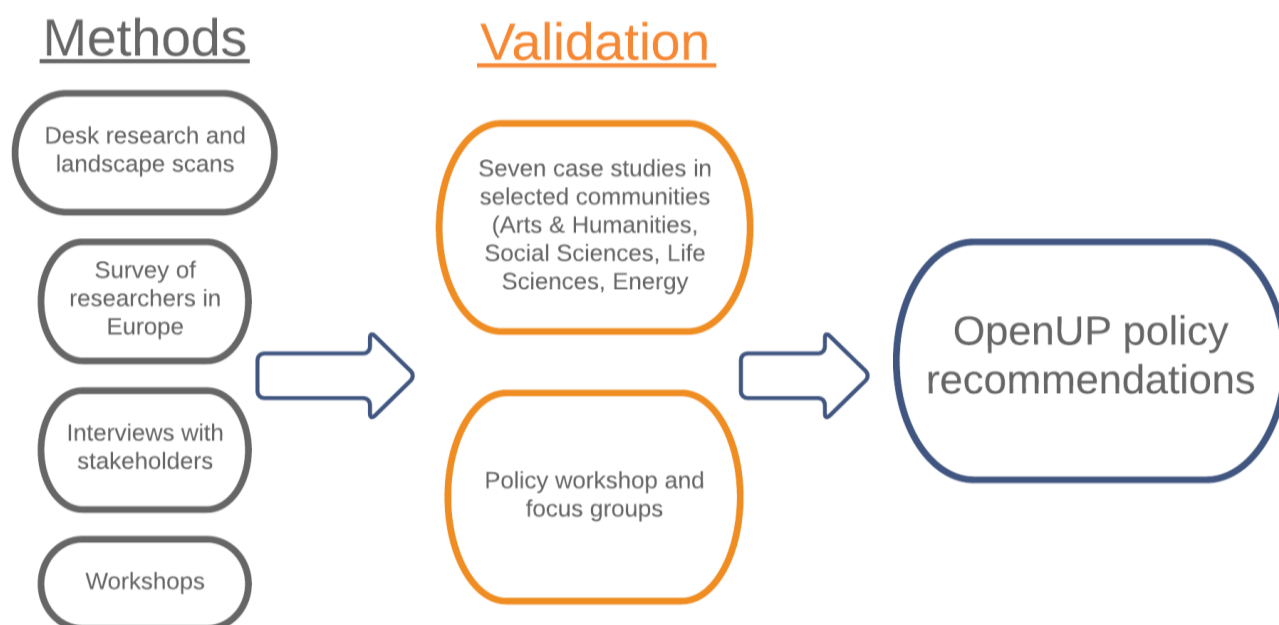
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1. Introduction and methodology

Open Access and Open Scholarship have revolutionised the way scholarly artefacts are evaluated and published, while the introduction of new technologies and media in scientific workflows has changed “how” and to “whom” science is communicated. The modes of interaction between the public and the scientific community are also changing due to the internet and social media. The OpenUP project studied key aspects and challenges of the currently transforming science landscape to provide a cohesive framework for the review-disseminate-assess phases of the research lifecycle that is fit to support and promote Open Science. This report aims at giving a brief overview of OpenUP findings that formed the foundation for project’s conclusions. It also lists six policy recommendations that are directed to the stakeholders of the research life cycle, including EU, national and institutional policy makers, funders, librarians, infrastructure providers, publishers and researchers themselves.

To derive the final set of evidence-based policy recommendations, OpenUP partners engaged in an overarching research exercise (see an outline of OpenUP methods in figure 1). It included landscape scans of literature and a Europe-wide survey of researchers on the themes of the project: Open Peer Review (OPR), innovative dissemination and altmetrics. The consortium reached out to key experts and stakeholders in the review-assess-disseminate areas and gathered their inputs on the current practices, challenges and the latest developments through interviews. OpenUP also engaged researchers, funders, publishers, librarians, infrastructure providers, learned society members and other relevant stakeholders via a series of outreach (workshops, conferences, online media campaigns) and training events, to collect feedback and cross-check project findings.

Figure 1. An outline of the methodology of the OpenUP project.



Once the initial results became available and frameworks were developed, researchers tested project findings through seven pilot studies. They involved research communities from four scientific fields: Life Sciences, Social Sciences, Arts & Humanities and Energy. The seven pilots cut across three use cases that corresponded to OpenUP’s themes: peer review, innovative dissemination and alternative impact measurements. The pilot studies gave OpenUP project researchers the opportunity to engage with relevant communities directly, and test and validate the key findings in the field.

To validate the final project results (including the ones coming from the pilots), the OpenUP team organised a high-level expert workshop on the role of Open Science in the future EU and national research programmes. It was held in Brussels on 28 June 2018. The list of attendees included representatives of the main project stakeholders, namely researchers, publishers, funders, association members, librarians, infrastructure providers and policy makers. The workshop participants received a briefing note outlining the OpenUP results and conclusions as well as three possible policy scenarios on how OPR, innovative dissemination and alternative impact measurement could be promoted in the scientific community. The results and analysis of the scenarios were presented to the workshop participants and discussed in two focus groups. One focus group was dedicated to OPR and the second one to innovative dissemination and alternative metrics. The minutes and key conclusions of the workshop and the focus groups are available in Annex 1.

The workshop and focus groups not only validated the results of the project, but also gathered further feedback from the experts on how the final conclusions and recommendations should be improved. The research team worked to further refine the scenarios and reformulate the recommendations. They are presented at the end of this document. The final set of OpenUP recommendations are practical guidelines directed at the EU, national and institutional policy makers, researchers, funders and librarians looking for ways to address emerging challenges and adapt to the rapidly changing scientific research landscape.

2. Research lifecycle: review-disseminate-assess

2.1. Changing review-disseminate-assess practices

Open access and other Open Science components accompanied by technological developments are changing the practices of stakeholders involved in academic research. Exponential growth of research outputs and an increasing demand for more open, transparent and reproducible science has been pushing the research community to rethink how research results are reviewed, published and assessed. Innovative tools to disseminate research have altered how and to whom science is communicated, and how the public interacts with the scientific community. In addition, traditional research review and evaluation methods do not correspond to this changing landscape and require new policies and practices.

The traditional **peer review process** used by many scientific journals is subject to criticism on several fronts.¹ It has been described as unreliable, too lengthy, biased and lacking accountability and transparency.² On the other hand, OPR and its different components,³ open up the traditional process in order to help address these criticisms. OPR introduces such aspects as open identities (author and reviewer disclose their identities), open reports (review reports are published alongside the publication) and open participation (wider participation of interested parties in the process).⁴ These new aspects enable a more open discussion on research outputs. OPR can also help authors get feedback

¹ See Görögh, E., et al. (2017). [Deliverable D3.1– Practices, evaluation and mapping: Methods, tools and user needs](#). OpenUP project.

² Lee, C. J., Sugimoto, C. R., Zhang, G. and Cronin, B. (2013). Bias in peer review. *J Am Soc Inf Sci Tec*, Vol. 64, PP: 2–17.

<https://doi.org/10.1002/asi.22784>; Manchikanti, L., Kaye, A. D., Boswell, M and Hirsch, J. A. (2015). Medical Journal Peer Review: Process and Bias. *Pain Physician*, vol. 18, pp: E1-E14.

³ Ross-Hellauer, T. (2017). What is open peer review? A systematic review. *F1000Research*, 6:588.

<https://doi.org/10.12688/f1000research.11369.2>

⁴ European Commission. (2015). Validation of the Results of the Public Consultation on Science 2.0: Science in Transition. http://ec.europa.eu/research/consultations/science-2.0/science_2_0_final_report.pdf#view=fit&pagemode=none.

not only on the final research outputs (articles or books) but also on what is created at various stages of the research process (software codes or datasets). Various initiatives are emerging among researchers who are willing to employ OPR. For example, the Open Science Peer Review Oath⁵ includes four principles⁶ that are in line with OPR practices. Reviewers are encouraged to add a link to the oath and to inform authors and potential publishers that the reviewer will follow the principles set out in the oath. Also, alternatives to the traditional closed peer review process are already offered by a number of open access journals and publication platforms (Frontiers, BMJ and F1000research).

OpenUP's survey results revealed that despite the varying levels of agreement among researchers to different peer review aspects, "review of data underlying an article" received the strongest support.⁷ Over 70% of respondents "strongly supported" or were "rather in support" of this aspect of OPR. On the other hand, Pilot 2 found that OPR of data in social sciences is rarely adopted.⁸ Also, Pilot 3 found that data review includes more issues to manage as datasets can be complex, multifaceted information objects that constantly change over time⁹. The other traits of OPR, such as open identity, open participation, open report, and open pre-review were supported by a lower numbers of respondents.¹⁰ Interview data showed a division of opinions on whether the use of OPR should be taken up more widely.¹¹ On the other hand, feedback on the OPR process applied to conferences given by the researchers involved in Pilot 1 was positive. Overall, the participants expressed a strong acceptance of the proposed OPR process and would support it again. The participants' greatest fears associated with OPR included: biased/whitewashed reviews due to non-anonymity; backlash for bad reviewing (e.g. over other channels/private email); and added effort and risk for reviews outside one's own expertise (lay-man reviews). Some respondents of the OpenUP survey saw the need to fund and promote studies as well as to advertise successful examples in the context of OPR to showcase the good examples. Others emphasised lack of awareness among researchers and more trainings and incentives needed to increase the adoption of OPR practices.

Research dissemination practices that traditionally implied a one-way communication from researchers to the public, or directed only towards other academics are changing as well. Social media and other web-based technologies provide an array of methods researchers can employ to disseminate their work. They also enable the public to obtain research information or to engage with researchers faster. Many research funders are also calling for stronger involvement of policy makers, industry, civil society organisations and citizens in their funded research.¹² Such engagement of different stakeholders in research and innovation is needed to foster mutual understanding, co-create research and innovation outcomes, provide input into policy agendas and ultimately to facilitate research result uptake.

Through OpenUP's survey, we found that 71% of researchers agreed that it is important to disseminate research to non-research audiences, although less than a third of respondents used the dissemination

⁵ Aleksic, J. et al. (2015). An Open Science Peer Review Oath. *F1000Research*, 3:271.

<https://doi.org/10.12688/f1000research.5686.2>.

⁶ Principle 1: I will sign my name to my review; Principle 2: I will review with integrity; Principle 3: I will treat the review as a discourse with you; in particular, I will provide constructive criticism; Principle 4: I will be an ambassador for the practice of open science.

⁷ Görögh, E., et al. (2017). [Deliverable D3.1- Practices, evaluation and mapping: Methods, tools and user needs](#). OpenUP project.

⁸ Forthcoming: OpenUP. (2018). D6.3 Final Use case evaluation report.

⁹ Carpenter, T. (2017). What Constitutes Peer Review of Data? A Survey of Peer Review Guidelines. Scholarly Kitchen. Retrieved 5 August 2018 from: <https://scholarlykitchen.sspnet.org/2017/04/11/what-constitutes-peer-review-research-data/>

¹⁰ Banelyte, V. et al. (2017). [Deliverable D7.2 – Completed Policy review and mapping and field research activities](#). OpenUP project.

¹¹ Ibid.

¹² European Commission. (2012). Responsible Research and Innovation: Research and Innovation Europe's Ability to Respond to Societal Challenges. https://ec.europa.eu/research/swafs/pdf/pub_public_engagement/responsible-research-and-innovation-leaflet_en.pdf. Also see: <https://ec.europa.eu/research/swafs/index.cfm?pg=policy&lib=engagement>.

channels specifically designed to reach such audiences on a regular basis. Interviews with different stakeholders also showed diverging opinions on mandates requiring researchers to engage in novel research dissemination practices. Researchers in particular were concerned with the time and skills needed for such activities. Still, in the innovative dissemination case studies analysed in WP4, we demonstrated a variety of tools and strategies that research projects used to communicate their research innovatively across distinct scientific disciplines.¹³ Although there are enthusiastic early adopters of innovative dissemination methods, a wider uptake is still hindered by lack of skills and time resources among researchers and research communication cultures prevailing in specific disciplines. Our interviews with key stakeholders confirm that the growing need for improved and more interactive public communication of science is accompanied by a substantial gap in the current science communication system. To improve science communication enabling better perception and awareness of science of key stakeholders and the public, it is recommended to create and fund new science communication roles and positions¹⁴.

The established **evaluation methods of research and researchers** are facing criticism as well. Bibliometric indicators like the h-index¹⁵ or the Journal Impact Factor (JIF)¹⁶ are the most common research assessment tools. However, they are believed to have a bias towards senior researchers or reflect the overall impact of a journal and not that of a specific article.¹⁷ These and other bibliometric indicators are failing to prove their suitability for measuring research outputs and their impact, in the context of a movement towards Open Science. They also do not consider other types of activities that scientists participate in, for example review work, engagement in social media and citizen science.

In response to this, altmetrics emerged to broaden the spectrum and understanding of the impact of research and researcher evaluations. The growing uptake of new forms of dissemination (e.g. blogs, Twitter, openly available reports and open and citable data) is now also driving the use of alternative metrics. They hold the potential to improve the way research impact is understood and measured. There are gaps in the researcher recognition, evaluation and researcher career advancement systems that could be filled by expanding the currently used research and researcher assessment criteria¹⁸.

However, the concept of altmetrics is still new and a rather small proportion of researchers are aware of it and even fewer use them. A third of the OpenUP survey respondents were aware of altmetrics and only 15% of the total respondents used it in their work.¹⁹ More conceptual scrutinization is needed to establish what altmetrics can measure and how they can inform decisions of researchers and policy makers. Also, dedicated trainings for researchers on alternative metrics are needed to provide clear guidance on what activities such metrics consider.

¹³ Kraker, P., Bachleitner, R., et al. (2017). [Deliverable D4.1 – Practices evaluation and mapping: Methods, tools and user needs](#). OpenUP project.

¹⁴ Vignoli, M., Rörden, J. (2018). Deliverable D4.2. [Role description: Dissemination to businesses and the public](#). OpenUP project

¹⁵ Hirsch, J. E. (2010). An Index to Quantify an Individual's Scientific Research Output That Takes into Account the Effect of Multiple Coauthorship. *Scientometrics* Vol. 85, no. 3, pp: 741–54, <https://doi.org/10.1007/s11192-010-0193-9>.

¹⁶ Garfield, E. (1972). Citation Analysis as a Tool in Journal Evaluation. *Science* Vol. 178, pp: 471–79, <http://dx.doi.org/10.1126/science.178.4060.471>.

¹⁷ The San Francisco Declaration on Research Assessment (DORA). (2012). <http://www.ascb.org/dora/>; Hicks, D. et al. (2015). Bibliometrics: The Leiden Manifesto for Research Metrics, *Nature News* Vol. 520, pp: 429-31. <https://doi.org/10.1038/520429a>.

¹⁸ Wilsdon, J. et al. (2017). [Next-generation metrics: Responsible metrics and evaluation for open science](#). Report of the European Commission Expert Group on Altmetrics.

¹⁹ Blümel, C. (2017). D5.4 report on final taxonomy linking channels of dissemination and altmetrics. OpenUP project. <http://openup-h2020.eu/project-material/project-deliverables/>.

2.2. Challenges in uptake of novel methods

At EU and national policy levels, **the developments in OPR, innovative dissemination and alternative metrics practices are being monitored to assess their possible uptake**. Several expert groups and working groups have been established by the European Commission to produce recommendations for several areas of Open Science²⁰. Our country analysis showed that there are bottom-up initiatives in OPR, innovative dissemination and altmetrics areas coming from researchers, publishers, funding organisations, libraries, service providers and research organisations or learned societies.²¹ They mostly entail projects that aim to study and test the novel approaches.

Our findings confirm that although the new practices and initiatives are emerging and are being tested, several **obstacles hinder wide adoption of alternative review-disseminate-assess methods**. Researchers still feel tied up to the prevailing system of the traditional peer review, dissemination and evaluation practices. The new concepts and practices are not well-established, and some researchers and other stakeholders are not aware of the new developments and what specific options they entail. The adaptation of novel methods also requires time and financial resources. This might compromise the time and other resources researchers want to devote to conduct their scientific investigations. In addition, researchers seem to lack knowledge and most importantly skills and incentives to engage in novel practices.

Through the research conducted, OpenUP partners have mapped the current review-disseminate-assess practice landscapes, measured researchers' attitudes and practices in these areas and collected expert views on recent and future developments. In addition, the results were cross-checked and validated in several academic communities through pilots as well as through workshops engaging various stakeholders of academic research. The main factors that OpenUP found as hindering further uptake novel review-disseminate-assess practices are the following:

- Lack of clarity and awareness among researchers on what OPR, innovative dissemination and altmetrics entail and what their added-value is;
- Lack of evidence to showcase the advantages and efficacy of these new methods in improving research practices;
- Lack of time and financial resources as well as skills among researchers to take-up new methods.

3. The way forward: different scenarios in review-disseminate-assess cycle

The novel ways to review-assess-disseminate research have the potential to improve the cycle of scholarly publishing and research communication. The publication reviewing processes could become more transparent by employing OPR practices. Researchers could engage the public and achieve broader research impacts by employing innovative dissemination methods. Finally, a wider array of research and researcher evaluation methods could make the research and researcher assessment process more transparent and encompass a wider range of activities researchers engage in. The OpenUP's goal is to propose specific recommendations for policy makers and other stakeholders on how

²⁰ A comprehensive list is included in: OSPP (2018). [Integrated advice of the Open Science Policy Platform](#), p. 16

²¹ Banelyte, V. et al. (2017). [Deliverable D7.2 – Completed Policy review and mapping and field research activities](#). OpenUP project.

to overcome the obstacles and find the right approaches to increase the uptake of novel peer review, dissemination and assessment methods among researchers.

To accomplish this task and provide recommendations, we have carried out a policy scenario analysis²² (see sections below). This analysis presents several policy approaches and investigates the outcomes these approaches would have, if implemented. The analysis includes three scenarios 1) a bottom-up approach; 2) a top-down policy approach; 3) a balanced policy approach. For each scenario we give a strength, weaknesses, opportunities and threats (SWOT) analysis to describe and assess the outcomes of each scenario. Our strategy rests on qualitative assumptions based on the results of all the OpenUP research. The scenarios consider current trends in OPR, innovative dissemination and alternative metrics, and use them to extrapolate possible future developments. Then, each scenario is evaluated by a SWOT analysis to identify one that could result in the largest uptake with minimal resources.

An earlier version of these scenarios was presented and discussed in the OpenUP high-level expert workshop by different stakeholders in two focus groups. The research team used the feedback provided by the participants to refine the scenarios and reformulate the final set of recommendations presented in this document.

3.1. Scenario 1: the business-as-usual approach

The business-as-usual approach assumes that the initiatives and policies in the areas of OPR, innovative dissemination and alternative metrics remain at the current uptake levels. The awareness of OPR, innovative dissemination and altmetrics among researchers would not increase and the uptake would concentrate with clusters of researchers who are the inventors or early-adopters of such practices. Other stakeholders, such as policy makers, service providers and research institutions, would roll-out initiatives and policies to be tested as it is currently done at EU level and across several Member States. However, interest and uptake of new policies would remain low as scholarly publishing, communication and evaluation would remain tied to the established practices.

Under this scenario, the practices in peer review, research dissemination and evaluation in academia would remain unchanged:

- Different methods of peer review would be used by different publishers, but single-blind review would prevail, and review reports would remain unpublished;
- Research dissemination would remain predominantly focused on article/book publications and conference presentations;
- Research impact assessment and researchers' evaluation would continue to be based on bibliometric indicators.
- Policy makers and national stakeholders would set-up and implement initiatives and projects to test and study the possible approaches to OPR, innovative dissemination and altmetrics; The lack of coordination between the different initiatives, particularly when implemented locally at Member State level, would remain.
- The uptake and use of novel methods of peer review, research dissemination and evaluation would be concentrated in clusters of researchers and other stakeholders who are the early adopters of novel practices.

²² The scenario development was based on the methodology described in Kosow, H and Gaßner, R. (2008). Methods of future and scenario analysis: Overview, assessment, and selection criteria. German Development Institute.

Table 2. SWOT analysis of the business-as-usual approach.

Scenario 1: business-as-usual approach maintaining the current status quo in the uptake of OPR, innovative dissemination and alternative metrics practices.	
Strengths	Weaknesses
Under the business-as-usual scenario the status quo of initiatives and policies in OPR, innovative dissemination and altmetrics would remain at the current levels or develop only in line with existing trends.	OPR, innovative dissemination and altmetrics would be used only by engaged clusters of researchers and other stakeholders. Many researchers would remain unaware of such practices and what they entail.
Threats	Opportunities
The dissatisfaction among researchers as well as the public with the way new scientific knowledge is reviewed, communicated and evaluated would continue.	The awareness and uptake of OPR, innovative dissemination altmetrics practices could possibly increase in a longer term.

3.2. Scenario 2: the top-down policy approach

The top-down policy approach would entail an adoption of binding policies at EU and national levels to ensure the uptake of OPR, innovative dissemination and altmetrics. Researchers, research institutions, funders and other stakeholders would be required to develop, enforce and monitor compliance with all aspects of OPR, innovative dissemination and alternative research impact measurement. Under such policies, researchers accepting funding would have to comply with new binding requirements of OPR, innovative dissemination and altmetrics. More specifically, this scenario would imply:

- Researchers’ and reviewers’ identities would be revealed during the peer review process and review reports would be published openly.
- Review could be opened to a wider community of researchers and managed by a separate platform rather than the publisher.
- Researchers would have to openly share their preprints or manuscripts before submission to a peer reviewed journal.
- Data underlying the articles would be reviewed together with the submitted article.
- Research dissemination via other means than scientific publications and conferences would become mandatory. Researchers would be obliged to use various communication channels to disseminate their research results.
- Alternative metrics would be used when evaluating researchers for career advancement and project funding.

Table 3. SWOT analysis of the top-down policy scenario.

Scenario 2: top-down policy requiring uptake and implementation OPR, innovative dissemination and altmetrics.	
Strengths	Weaknesses

<p>The uptake of OPR, innovative dissemination and altmetrics would substantially increase under such binding requirements.</p>	<p>A top-down approach would require extensive time and financial resources from researchers, research institutions and other stakeholders. The resources would have to be taken from research activities and directed to understanding the new requirements, attend trainings and deepen knowledge of the OPR, innovative dissemination and altmetrics areas.</p> <p>It is far unclear how such measures could be enforced across the different areas.</p> <p>There is the danger of failure of such a top-down approach, because many of the economic and technological activities (e.g., innovations on digital platforms) which drive the development in innovative dissemination cannot be governed centrally.</p>
<p>Threats</p>	<p>Opportunities</p>
<p>A top-down approach would generate a strong dissatisfaction among researchers, research institutions and other stakeholders.</p> <p>A very strong political commitment would be required to implement such a scenario. Changes in the political landscape would pose a threat to fulfilment of such a scenario.</p>	<p>A top-down approach could constitute a rapid and widespread uptake of novel methods of peer review, dissemination and evaluation.</p>

3.3. Scenario 3: balanced approach

Scenario 1 would generate a slow progress of transitioning the research life cycle to a more open and transparent system. On the other hand, unconditional implementation of Scenario 2 would require resource-intensive measures for its implementation and is likely to result in strong dissatisfaction of researchers with such an approach. Scenario 3 offers an alternative balanced approach to increase the uptake of OPR, innovative dissemination and altmetrics practices and push for a change in the current research landscape. Under this scenario the change would be faster compared to scenario 1 but based on support and incentives rather than mandates that scenario 2 implies.

During the focus group discussions and the OpenUP high-level policy workshop, the 3rd scenario gained the largest support by the participants. Still, some participants noted that the 1st and 2nd scenarios also have important aspects that should be considered when designing policy recommendations. The business-as-usual approach needs to be considered as gaining researchers' support for novel approaches is crucial. On the other hand, this could take a long time. A top-down policy would foster the implementation of new policies faster. Such an approach, however, should be combined with a good support and training network to avoid misunderstandings of the requirements.

Taking the feedback into account, a balanced policy scenario implies a gradual increase in uptake of the OPR, innovative dissemination and altmetrics practices by all stakeholders. This should be accompanied by adequate financial mechanisms and trainings to raise awareness among researchers on the novel methods. The scenario integrates policies and initiatives that are being implemented at EU (for example, the latest initiative by the European Commission to launch the Open Research Europe Publishing

Platform²³) and national levels²⁴ with various bottom-up innovative practices that researchers engage in peer review, research communication and impact measurement. This scenario suggest to test and implement selected aspects of the novel approaches considering the different practices established in research communities, across various scientific disciplines and research infrastructures available in countries.

Table 4. SWOT analysis of the balanced policy scenario.

Scenario 3: A balanced policy scenario fostering gradual increase in awareness and uptake of OPR, innovative dissemination and altmetrics practices.	
Strengths	Weaknesses
<p>A balanced policy approach would increase the awareness of OPR, innovative dissemination and altmetrics among researchers and other stakeholders.</p> <p>Together with the increased understanding and support available to them, researchers and other stakeholders would be more likely to engage in novel practices in OPR, innovative dissemination and altmetrics.</p> <p>Increased evidence base would provide the decision makers with possible lines of action.</p>	<p>In the first implementation stage, a balanced policy scenario would require funding and resources to provide infrastructure and raise awareness and train researchers on the specific topics and policies in OPR, innovative dissemination and altmetrics.</p>
Threats	Opportunities
<p>The scenario would require political commitment and political decision to allocate resources and support such initiatives. Changes in political landscape could undermine the implementation of the scenario.</p>	<p>This approach considers both bottom-up initiatives already stemming from the research community as well as top-down initiatives from policy makers and funders. It offers an avenue for uptake of novel practices with minimal resistance and dissatisfaction from researchers and other stakeholders.</p>

4. Recommendations for OPR, innovative research dissemination and alternative impact measurements

Final OpenUP policy recommendations are based on scenario 3. This scenario integrates the novel practices with the existing ones and their supplementation. Specific policies would be promoted under each review-disseminate-assess topic by policy makers, institutions, funders and librarians at the same time providing support and awareness raising initiatives for researchers. A key aspect of this would be a continuing commitment to increase the evidence-base to highlight the advantages and efficacy of these practices and tackle obstacles in their implementation. This is also crucial to generate knowledge on the effects of Open Science practices on gender and diversity issues in research and academia.

Specific recommendations are:

²³ European Commission (2017). Information Note: towards a Horizon 2020 platform for open access.

https://ec.europa.eu/research/openscience/pdf/information_note_platform_public.pdf#view=fit&pagemode=none

²⁴ For examples see Banelyte, V. et al. (2017). [Deliverable D7.2 – Completed Policy review and mapping and field research activities](#). OpenUP project.

1. **Support demand and supply of OPR by running pilots.** To increase the uptake of OPR, researchers need incentives and easy-to-use infrastructures. On the other hand, more publishers need to offer OPR as part of the publication process. Running pilots that implement selected OPR practices in EU and national funding programmes would raise awareness and increase skills among researchers on OPR. Secondly, such pilots would generate the much-needed evidence base on which OPR aspects work and what impacts OPR has in distinct research communities and among different researchers (considering their gender, career stage, country, ethnicity). The pilots implemented under OpenUP confirmed this in practice.
2. **Create incentives for and strengthen monitoring of innovative dissemination activities taking into consideration differences across disciplinary fields.** Researchers need financial incentives and adequate recognition to foster their engagement with innovative dissemination methods. In addition, institutions and funders should provide more comprehensive support and training to equip researchers with skills needed to engage in such activities. Finally, institutional policy-makers and funders need to implement systematic evaluation and monitoring procedures to further incentivise researchers to engage in innovative dissemination activities.
3. **Increase awareness of and train researchers on alternative metrics.** This will be partly addressed by strengthening the implementation and monitoring of dissemination activities (mentioned under the previous point), but additional dedicated awareness raising activities by national and institutional policy makers, libraries, funders and publishers are needed.
4. **Further exploit the ongoing policy developments and find opportunities to integrate OPR, innovative dissemination and alternative metrics in research workflows and evaluation.** Priority should be given to areas related to open sharing and review of research data. E.g. the EOSC initiative will create stronger demand for data reuse/sharing, which offer opportunities for all three areas (e.g. open review of data, monitor and reward researchers for related activities). EU and national level policy makers and funders should establish such funding mechanisms to create opportunities for researchers to engage in such integrated workflows.
5. Through increasing transparency, Open Science offers mechanisms which could improve gender inequities in research and academia. However, issues such as monopolization of knowledge production or vulnerability of individuals or minority groups through increased exposure persist in an open science ecosystem. **To fully understand the potential of Open Science practices for solving gender and diversity issues in research, more dedicated investigation is needed.**

Annex 1.

OpenUP high-level expert workshop on the role of Open Science in the future EU and national research programmes

28 June 2018

Crowne Plaza Brussels - Le Palace, Rue Gineste 3, Brussels

Workshop minutes

Summary

The OpenUP high-level expert workshop on the role of Open Science in the future EU and national research programmes took place on 28 June in Brussels. The workshop aimed to contribute to ongoing discussions on the future policies of Open Science across the EU and present the interim results of OpenUP project on open peer review, innovative dissemination and alternative metrics. The event hosted four keynote presentations, a panel discussion and two focus groups. One focus group focused on open peer review and the second one on innovative dissemination and alternative metrics.

This report gives an overview of the topics addressed during presentations and focus groups session. Sections below summarize the key messages of the keynote speakers, questions addressed to them as well as the main points brought up during the panel discussion. The sections on focus groups outline the structure of the sessions, the participants that were involved and the main points they raised during the discussions.

In total, 46 people attended the workshop representing EU and national level policy makers, national research councils, libraries, funders, universities and research institutions, learned societies, infrastructure providers, publishers and publisher associations. The minutes of the workshop are available in the annex.

Welcome by the OpenUP consortium

Vilius Stančiauskas, the coordinator of the OpenUP consortium, opened the workshop and welcomed the participants. He presented the OpenUP project, its structure, key study areas and expected results. Mr Stančiauskas also introduced the agenda, the keynote speakers and the topics of their presentations:

- Victoria Tsoukala, Policy Officer, European Commission (Open Science Developments: European Commission perspective);
- Julia Reda, MEP, (Creating synergies between the European Commission's open science and copyright reform policies);
- Professor Jean-Pierre Finance, a member of the Research Policy Working Group and the Chair of the EUA Science 2.0/Open Science Experts Group, EUA (Redefining Research Assessment: What are the roles for universities?);
- Rebecca Lawrence, F1000 Managing director and OSPP member, (Moving beyond the journal: Separating publication from evaluation).

The session with keynote presentations ended with a panel discussion moderated by Natalia Manola, Managing Director of the OpenAIRE consortium. The key topics presented and discussed are outlined in the sections below.

Keynote 1: Developments of Open Science: European Commission perspective

The first keynote speaker, Victoria Tsoukala, presented eight policy priorities for Open Science policy agenda agreed by the European Commission (EC) in 2016. They include open data, science cloud, next generation metrics, future of scholarly communication, rewards, research integrity, education and skills, and citizen science. She emphasised the importance of the European Open Science Cloud (EOSC). The period between 2017 and 2020 is considered to be the first phase of the EOSC, where the EC has a central role in steering its direction. However, from 2020, the Member States will be actively involved alongside the EC, making decision on the EOSC, such as funding, co-funding, directing national funds and the overall direction of the EOSC.

The other key development presented by Ms Tsoukala was the 2018 Data Package. It includes public sector and publicly funded data, private sector data and research data. The proposal for a Public-Sector Information (PSI) Directive as part of the 'Data Package' extends the scope of the PSI Directive to publicly-funded research data already accessible via repositories. The second element of the Data Package initiative is the guidance on private sector data sharing in Business-to-business and Business-to-government contexts. The final element is an update of 2012 Recommendation on access to and preservation of scientific information. Ms Tsoukala stressed that the Member States are also encouraged to develop their own national policies for open access to research data.

The final points presented by Ms Tsoukala focused on the new Framework Programme (FP) and the integration of Open Science into its Work Programmes. The proposed regulations for the FP9 programme will go beyond open access, enable institutions and researchers to practice Open Science, support the active engagement of the society in science and request organisations to support their researchers with adequate copyrights agreements to comply with Commission's open access requirements. The adoption of data management plans in FP9 will be mandatory, with a possibility to opt-out. The EC expect this to boost good data management practices even when making the data open

is not possible. Other actions in the FP9 will embrace Work Programmes to support researchers' skills and reward systems, the requirement to use additional Open Science practices and the use of the EOSC.

Question and answer session

The first question from the audience asked what the Commission's position was on dealing with the software next to the open access to publications and open data. Ms Tsoukala responded that the EC will provide incentives for researchers to share all of their outputs, not only publications. She noted that the EC wanted to encourage early sharing of various research products and early scholarly communication as this is important in many scientific disciplines.

The next question was related to the recognition of FAIR attitudes among researchers when they apply for research grants from the EC. Ms Tsoukala responded that the EC works on the regulation that is a general legal framework for the future FP, but it still needs to be operationalised. Open Science will encompass all the stages of the project cycle: applying for funding, performing projects and others. Evaluating proposals is an aspect, which is not covered by the regulation, but the researchers will be incentivised to adopt Open Science principles already the proposal stage, and that this will be assessed during the evaluations.

A member from the audience representing the REA noted that there are some cross-cutting issues that are relevant for the EC-funded projects and Open Science is one of them. When evaluating the proposals, the REA asks external experts to look specifically at Open Science, open access and other elements, which become part of the evaluation score. Ms Tsoukala also added that in certain Work Programmes of the FP9, the evaluators might only consider open access publications and not the closed access ones.

The final question from the audience was on the EC's view on data owned by private companies and science data. As some companies are bound by the licence agreement and they cannot make the data public, they would have to break the licence agreement if it is required by the EC. Ms Tsoukala assured that the EC does not require breaking licence agreements. All licence obligations and contracts signed before signing the Grant Agreement must be respected. However, the EC will still strive to involve industry to open up their data.

Keynote 2: Creating synergies between the European Commission's open science and copyright reform policies

The second keynote speaker, Julia Reda, highlighted EC's Open Science and copyright policies, and what can be done to make use of the available synergies between them. According to Ms Reda, Open Science is an important policy development that could help deal with various issues affecting academic institutions as well as scholarly publishing. More specifically, Ms Reda saw the potential of open access in dissemination of new knowledge and scientific peer review becoming more accountable and more efficient.

She continued her statement by outlining that the EC's recommendation on open research data creates a framework that will make opening the data much easier from the beginning of the research process. This is a step in the right direction, but more cooperation is needed between the areas of Open Science and copyright reform within the EC. The example given was the area of text and data mining (TDM) and the exception for TDM that is discussed in the framework of the copyright reform. There is some legal uncertainty whether absolutely every copy of the copyrighted material needs a licence. Copies in TDM are not for the purpose of distributing copyrighted works to other people and diminishing the profits of

the rights holders. Rather, the aim is to convert one data format into another to make the data minable. Hence, TDM should be an exception in the copyright reform.

However, the EC's proposal is to grant such an exception to research organisations only. This would exclude people who are not affiliated to a research institution (e.g. citizen science projects, data journalists). Another issue in the TDM discussions is that some publishers and policymakers are pushing requirements that all copies that are made in the context of TDM, have to be deleted once the research process is finished. According to Ms Reda, this is contradictory to the principles of Open Science as in that case research cannot be reproduced later. She hopes that the progress made within the EC in the Open Science area will also reach the copyright reform particularly in terms of the TDM.

Research repositories was another topic addressed by Ms Reda. The Public Sector Information directive (PSI) is based on the research data that is available through repositories. The copyright proposal includes a new liability regime to the online platforms where users can upload 'user generated content', which is any kind of copyrighted content. However, there are issues for research repositories such as the case of non-commercial activities, which are extremely restrictive. For example, universities that are dependent on a third-party funding, having relationships with industries or taking tuition fees cannot be non-commercial. Such liability regime does not echo the needs and purpose of research repositories.

Ms Reda also highlighted the opportunities for Open Science in the copyright reform. For example, the possibility to support authors when it comes to transparency on how their works are exploited and on the revenue the publishers make from their articles. In turn this would give more power to the research institutions when negotiating with publishers. It is important that the Directorate Generals of the EC dealing with research and with copyright, the national ministries and the research and the legal affairs committees in the European Parliament collaborate and implement coherent policies to strengthen Open Science policies in the copyright reform.

Question and answer session

In the question and answer session, Ms Reda shared her views on how to make the scientific community more aware of the copyright issues. Researchers should be more aware of their contracts; universities should decrease the pressure on researchers to publish their works in the restrictive access journals. Research community should invest more into model contracts and develop the best practices in what kind of contracts should be acceptable. Also, copyright reform could specifically introduce transparency provisions so that researchers and universities would know more details about the big deals made between publishers and universities, which usually are under the non-disclosure agreements. The latter weakens the negotiating position of the universities as they lack this information.

The next question raised a point on researchers' willingness and ability to negotiate their copyright agreements when publishing articles in scientific journals. Ms Reda noted that a simplistic answer to that is more education. To make researchers more confident to challenge the copyright agreements more education on the copyright regimes is needed. However, legal issues are very complex and usually require in-depth knowledge and expertise to address them. According to Ms Reda, the primary goal would be the simplification and harmonisation of the copyright law.

Another question raised the issue of including research data to the PSI directive. Ms Reda responded that they are working in this direction and this is one of the goals. The final question asked how the revised PSI directive is going affect the material of museums, archives, libraries and incentives to digitalise them. Ms Reda explained that the actual revenues from closed public sector data are insignificant comparing to the costs. At the same time, the European Parliament voted for the new article, where the copies that are made to be used under one exception cannot be used under other

exceptions. She pointed out that she disagrees with it and gives an example of cultural heritage institutions, where if copies are made for preservation purposes, including digital copies, they will not be allowed to be used for educational, research or other purposes. In the PSI, the EC is trying to push limitations for charging for public sector data as much as possible. And the underlying analysis shows that revenues derived from the public-sector data are small compared to the overall benefit of opening that data up. But there are some politicians who believe that these funds are necessary for their countries' budgets, which according to Ms Reda is not rational.

Keynote 3: Redefining Research Assessment: What are the roles for universities?

Professor Finance presented the key priorities in Open Science that the European University Association (EUA) are focusing on in 2018. They include the EOSC developments, legislative issues such as copyright and PSI, continuing with the open access institutional survey and the Big Deals survey. He also outlined the current situation and the main challenges in research assessment and reward system. One of such issues is the extensive use of publication metrics. The quality of articles produced by researchers is not evaluated directly, but rather through a proxy, i.e., the reputation of the journal. New methods of conducting and disseminating research call for a broader set of research evaluation criteria. Professor Finance noted that new research assessment methods should be adapted to the needs of different scientific areas/disciplines, researchers' career stage, multidisciplinary and profiles of institution. Qualitative indicators in research assessment also need to be taken into account and valorised.

He emphasised that universities have a key role in shaping the evolution of the research and scientific system. Hence, in 2018 EUA created a Roadmap on Research Assessment to encourage and support changes in this area. EUA will focus its activities on the research evaluation methods and support academic institutions in researchers' assessment. The priority actions of the EUA Roadmap on Research Assessment are information gathering and sharing, dialogue with universities and other stakeholders, and policy and good practice recommendations. Finally, Professor Finance noted the need to increase the awareness and engagement of universities in the area of research assessment and scientific career management.

Question and answer session

In the question and answer session, professor Finance agreed that the impact factor in the researchers' assessment should be changed while mobilising researchers, diversifying criteria and moving from quantitative more to the qualitative criteria. Although he noted that this is still difficult for research institutions. He also addressed a question on repositories and research data management, explaining that universities are still in the beginning phase of the open data management, repositories and infrastructure creation.

The next question asked for the possible next steps in research and career assessment organisation and implementation at universities. Professor Finance responded that they are in the beginning of this process, but EUA want to enable institutions to share experiences and learn from each other. Such an approach could provide examples, ideas and vision to the management of universities. In his final responses, he emphasised that the members of EUA are European institutions that share similar cultures. Although some might be more advanced in taking up Open Science practices than others, there is a common direction.

Keynote 4: Moving beyond the journal: Separating publication from evaluation

Rebecca Lawrence in her presentation highlighted the key issues in the traditional dissemination models, such as delays in publishing, publication bias, lack of support in data, methods, code or materials, poor reproducibility, incentives to report just the positive findings and the research waste.

She discussed the possibilities that the open peer review tools offer in the scholarly communication system. For example, they allow citing the article immediately. They also allow adding more data to the existing work, update it or track views. According to Ms Lawrence, open peer review changes the nature of the overall peer review: it helps authors improve the quality of their work and provides good training to early career researchers and junior colleagues in the peer review process. Open peer review can also be used in assessing researchers and their contributions to science. Tracking and crediting peer reviews of researchers can incentivise researchers to engage in such practices more. Ms Lawrence noted that a number of funders and institutions have implemented their own platforms for publishing as well as conducting peer review (e.g. Wellcome Open Research). These platforms are controlled by funders and allow the publication of a broad range of article types beyond standard research articles. However, it is necessary to have a central portal for publication, which could have an evaluation and a curation layer on top.

Ms Lawrence also outlined key barriers that exist, which prevent researchers from engaging in open research more. These include lack of incentives, reliance on the Journal Impact Factor, perceptions that open research requires more work and lacks quality, and conservatism prevailing at senior levels. These barriers can be tackled through the tools and infrastructures, metadata and interoperability, developing supportive policies, providing training to all stakeholders, and ensuring rewards and incentives to researchers and institutions. She noted that it is important to gather evidence (through pilots and case studies) that open research works and to showcase such evidence to researchers.

Question and answer session

In the question and answer session, Ms Lawrence explained the process that is used for selecting papers for open peer review in F1000, including various checks on the quality of language, reproducibility, and plagiarism. Another question from the audience was about the role of the learned societies in the open peer review process. Ms Lawrence agreed that due to their scientific expertise they have an important role in the peer review process, especially in the curation layer. A participant also contributed his opinion on the role of the learned societies in the peer review process. He noted that publications are very important to their society (European Physical Society) as they represent their scientific community as well as provide income, which can then feed back to the community. In addition, they closely collaborate with publishers in the peer review process. Ms Lawrence added that there is a potential for a different role of the learned societies. More specifically, if societies established their own open peer review platforms (mentioning the example of Wellcome Open Research), they could still use their existing resources and expertise but in a different way (for curation) and ensure a revenue simultaneously.

Panel discussion

Natalia Manola started the discussion with a question on the role of universities in aligning the concepts of excellent research and open research. According to Professor Finance, raising awareness and the promotion of infrastructures are important, as well as communicating with institution directors, showcasing the good practices of Open Science in increasing the quality of research and insisting them to take action. Ms Tsoukala noted that Open Science is a systemic and a cultural change within the scientific community. It requires raising the awareness that Open Science equals to excellent science by showcasing existing evidence on this topic. Also, institutional change is needed, for example, by incentivising and training researchers on Open Science. Ms Lawrence agreed that excellent science and Open Science concepts should not be seen as separate. Open Science should not be regarded as another mandated requirement upon researchers, it should be an easy process with adequate infrastructures. She added that it is important to raise awareness among researchers on why Open Science is good for them. When researchers understand the benefits, the requirements for Open Science will be easy to follow.

The second question Ms Manola addressed to the panel was about the move of publishers, including F1000, to providing services rather than owning data. But there are publishers that are still in a privileged position because they own the data. Ms Manola asked how such a transition can be implemented and who the enablers could be, especially at the university level?

Professor Finance suggested that in some cases researchers are aware of the publishing costs, particularly when it comes to the increasing prices of article processing charges. He also said that there are different possibilities how to move ahead (naming an example of big deal negotiations with publishers in Germany and other countries). The question is how we want to move ahead and whether we want to keep the same subscription model or turn to other possibilities. There are strong debates on this and the opinions across different scientific communities sometimes contradict.

Ms Tsoukala noted that there are many different models for providing publishing services and access to scientific papers. The subscription model might be the leading one currently, but open access is also increasing. The EC's position is clear and manifested through Horizon 2020. Research funded by public funds needs to be fully open. But institutions need to develop and strengthen their own institutional capacities to manage their outputs. Also, Member States have a role in aligning policies for open access in establishing sufficient infrastructures and making deals with publishers transparent. According to Ms Tsoukala, the roles of different players (research institutions, funders, publishers, etc) are also unclear and still evolving.

Ms Lawrence commented that she did not think researchers should be worrying about the different publishing models. To figure out all the administrative details would take away researchers' time from conducting research. She saw a role for institutions and funders, whom should collaborate to develop systems that would be suitable for researchers and to find the best funding model for them.

The next question came from a participant who expressed a concern for a lack of action in implementing open access. He noted that institutions and libraries are engaged in planning and creation of strategies, but Open Science needs to be implemented by changing behaviour and shifting budgets to open access. As money is being saved from the big deals with publishers, it could be used to fund open access. According to the participant, the universities and their rectors tend to hold this money back and use it for other things rather than making publications openly available.

Ms Tsoukala responded that in her opinion universities need to play a stronger role in this situation. But also, researchers need to be aware of where their research funding is coming from. In addition,

researchers should understand that research itself as well as publishing and communicating research results are two parts of the same process. They combine one research cycle and the second part, communicating research outputs openly, is as important as doing research.

Another participant enquired about the concept of scientific sovereignty. When negotiating with big scientific publishers in the Netherlands one can see a mismatch in their practices. On the one hand, they are taking care of the open access issues but on the other hand, they create a lock-in by owning the data. Ms Manola asked what the possible alternatives to this situation could be? The participant explained that in his view, universities should own the data themselves and pass it to systems without the control of scientific publishers.

Some participants shared examples of good case practices from their institutions. One such case outlined how an institution established a new research information system. Although this was done by a private company, the institution ensured the ownership of their data by extracting it from the private providers to their own system this way obtaining access to their data. Ms Manola noted that such a case is a good example for other institution and that the EUA could play an important role in transmitting such examples to their network.

The next comment from the audience was on how the term 'researcher' was used in the discussion. There are different areas of research and people working in various fields have different requirements. Also, the participant did not agree with the previous comment that universities do not distribute their funding adequately. Researchers usually work under conditions set by the funding agencies and follow specific rules on outreach and publishing. Hence, it is important to use the notion of researcher correctly and understand the context they are working in. Not all of them are unaware of research funding, open science and costs.

Ms Tsoukala emphasised that in the institutional change of universities, researchers cannot be left alone. They need support from the top levels of institutions and these top levels of the institutions also need to change. Professor Finance responded that this is not a top-down system. There are different scientific communities with their own needs and these needs come from the bottom to the top.

The final comment came from a participant who emphasised that the best way to move towards the change is to unite, work together and cooperate. She noted that everyone, including the scientists and the society are learning to deal with the sharing economy. This is a new process and, hence, patience is needed from everyone. Her second point was that the EOSC is dealing with the downstream part of science – the infrastructure and access rights. But it will have an enormous impact on the upstream part and someone has to foresee it. Currently this is missing. There is a need to change from within and the question is how to influence this cultural change. Open access is discussed in the European Commission, but the national ministries do not demand it. Therefore, the community should unite and collaborate, only then, there can be a change.

Natalia Manola ended the panel by thanking the speakers and the participants of the workshop for the engaging discussion and active participation.

Focus group on open peer review

In total, 11 persons joined the open peer review (OPR) focus group discussion. Six were external persons and five persons were from the OpenUP consortium. The group of participants comprised publishers and/or a publisher representative, a librarian, research funders and policy makers of a national consortium of universities.

Edit Görögh, the work package leader of WP3 in OpenUP, started with an introduction on OPR. She presented the key results of the landscape scan²⁵, the taxonomy, current practices, surveys that are showing a growing demand for open practices in peer review, and some solutions. The presentation was followed by reactions and questions from the participants. Some were surprised that researchers are willing to share the research data for open data review but are not willing to share their open identity. Also, the difference between mandating open access to research articles and mandating open peer review was discussed: authors have to publish, but they do not have to review. If a researcher decides not to review, it has no consequences for their academic career. That could be the reason publishers will never mandate open identity and offer an opt-out.

As a follow up, the participants were presented with five questions for a discussion. They could select two questions that they considered most relevant or contestable. For these questions, they were asked to mention the barriers they faced in their country or community in OPR uptake and also to share the good practices that increased the uptake of OPR. The questions were:

- Q1. Would transparency improve the review process?
- Q2. What challenges researchers (as authors and reviewers) face when engaging in OPR?
- Q3. How to raise awareness of alternative review methods among researchers and other stakeholders?
- Q4. Who/which organization should take initiative to advance wider uptake of these methods?
- Q5. What evidence/successful practice are you aware of, that have advanced uptake of OPR in specific communities?

The group decided to start with the first and see how many questions they could discuss.

A positive aspect of OPR noted by the participants was that it can help to make the quality of the peer review reports visible. These OPR reports can help open access journals to prove their quality. This is important as open access journals are by many researchers still seen as low-quality journals. Another good practice mentioned was editing of the review process and that transparency could improve the quality of the peer review process and the report. Participants also talked about remuneration of the reviewer. Some surveys have shown that remuneration would stimulate OPR. Funders do have experiences with remuneration of reviewers of large grant proposals. According to the funder, remuneration helps to establish a good relationship between the funder and the reviewer. So, this could be something to consider for peer review of scholarly outputs as well.

Another point that was discussed was that peer review that is decoupled or portable could speed up the process. Decoupled peer review could be organised by an external service. Authors pay the service provider (not the publisher they submit their articles to) and with the submission of the article, add the peer review report to the manuscript. Every journal can use the report. Therefore, the editor does not need to send the article out for peer review. When the article is rejected, the same report can be used for the next submission. Some publishers also reuse reports internally when authors resubmit to

²⁵ Görögh, E. et al. (2017). Deliverable D3.1– Practices, evaluation and mapping: Methods, tools and user needs. OPENing UP new methods, indicators and tools for peer review, impact measurement and dissemination of research results. Available: http://openup-h2020.eu/wp-content/uploads/2017/01/OpenUP_D3.1_Peer-review-landscape-report-1.pdf

another journal with the same publisher. In both cases (decoupled or portable peer review) one peer review can be sufficient. That is why decoupled or portable peer review saves time and work. The participants also expect that a direct dialogue between author and reviewer will shorten the peer review process and improve the quality of the paper.

Besides the role of the author and reviewer, also the role of the editor was mentioned. This role should also become more transparent. Although the name of the editor is known, his or her role during the process is not transparent. For example, it would be interesting to know which papers were rejected by an editor and who they invite as reviewers, etc.

The participants noted that there are quite a lot of unanswered questions about OPR. For instance, it is not known if transparency will improve the paper. And if it does improve the quality, it may take much longer. The efforts and benefits are unclear. The conclusion is that more research should be done about OPR.

The current problems with traditional peer review that were identified by the discussants are transparency, quality and speed of the review process. Based on the OpenUP survey we observe that with OPR, authors are in favour of quality and speed, but are afraid of the transparency aspect. And although the OpenUP survey showed that reviewers are more willing to share their report than their names, the participants concluded that an open peer review report is not enough. It is important that reviewers are accountable.

Policy scenarios

After the discussion, Edit Görögh presented three possible policy scenarios for stimulating OPR: business-as-usual, top-down policy approach or a balanced approach. The participants were asked which scenario would work best in their opinion.

Business as usual, which is a bottom up approach, was seen as necessary by the participants, as time is needed for the approaches to become more mainstream and known. Business as usual seemed a good starting point, but a strong focus on awareness raising is needed. After some time, such a strategy could drive a change in practices.

On the other hand, participants also saw risks in maintaining business as usual. An example was that the numbers of published articles are growing, but there are very few incentives for researchers to also be peer reviewers. Publishing is seen as important for researcher's career whereas peer review is not valued. This scenario could harm the quality of papers.

The process of article peer review could learn from the peer review workflow of proposals. For instance, to get recognition, for the peer review of some grants of the EC, the names and affiliation of the reviewers are published. This can also be done with other research outputs (publications, data, software etc.). An institution (university, research institute) could arrange that, and should be responsible. It could even be considered to include the reviewer in the paper and, when the reviewer is external, to pay for the review.

Participants saw that the top down scenario can have an impact as well. For instance, a mandate for OPR would significantly increase the uptake of OPR. But such an approach has many drawbacks. A solution could be a hybrid approach by which reviewers can opt out of open practices. Another idea that was voiced during the discussion was to ask researchers to review a minimum number of articles, and to measure the output by asking them to publish the reports on Publons. At the EC, there are requirements for countries and gender in grant reviews. A requirement for a minimum of peer-reviewed publications, software, etc. could also be implemented. However, to really change the existing system, and help to

guarantee the quality of the growing number of articles, OPR should also be made a part of the researcher assessment. The participants warned that policy makers should ensure that the quality of the journal (for which the researcher reviews) does not become a part of the assessment: reviewers should not be incentivized to turn down peer review requests for certain journals. Researcher assessments should be based on number of reviews. Finally, smaller stakeholders (e.g. publishers who work with rather small pools of reviewers) will not always be able to comply and offer OPR and this should be considered.

Piloting of OPR approaches was seen by the participants as a good way to stimulate change in the attitudes. Pilots can show researchers that OPR works. It was suggested to start with the OPR of proposals on research infrastructure. The role of institution was also seen as important. They could help stimulate OPR by raising awareness among researchers on OPR and explain to them why OPR is important for the researcher and the research in general. This is confirmed by the test runs done with OPR in two conference settings in context of the first OpenUP pilot. Overall, the participants expressed a strong acceptance of the proposed OPR process and would support it again. Also, the conference organisers of the EMVA are willing to continue applying the OPR approach for the next conference. The pilot study gave us important insights and feedback from the involved communities, which helped adapting and improving the OPR approach and making it practicable.

Conclusions

Although most participants mentioned benefits and drawbacks of both the bottom up and top down approach, the balanced approach was not entirely clear to the participants. The approach should be explained in more detail and other aspects, discussed during the session could also be included.

The main conclusions of the discussion were:

- The balanced approach scenario should be explained in more detail.
- The bottom up and top down scenarios are both needed to stimulate OPR.
- Awareness and trust are seen as key elements for transparency.
- Pilots are needed to showcase good OPR practices.
- More research should be done on OPR to generate substantial evidence.

Focus group on innovative dissemination and altermetrics

In total, 24 persons joined the innovative dissemination and alternative metrics focus group discussion. Six of them were members of the OpenUP consortium. The groups of participants comprised publishers and/or a publisher representative, librarians, funders, national level policy-makers, research institution representatives, infrastructure providers and publishers. The participants were split into three smaller groups of 5-7 people.

The focus group was hosted by Stephan Gauch and Tony Ross-Hellauer.²⁶ They introduced the key trends in innovative dissemination and alternative metrics and provided a brief overview of the findings of the OpenUP project in these areas. The presentation was followed by reactions from participants and discussion on the following questions:

- Q1. What do you consider to be innovative dissemination?

²⁶ Stephan Gauch was the Work Package 5 leader in OpenUP until December 2017. Tony Ross-Hellauer is the Work Package 4 leader in OpenUP.

- Q2. What barriers to uptake of innovative dissemination and altmetrics exist in the communities you work with?
- Q3. How can we raise awareness of innovative dissemination and altmetrics amongst various stakeholder groups?
- Q4. What examples of good practices regarding use of innovative dissemination and altmetrics are you aware of?
- Q5. How can altmetrics and innovative dissemination interact? How are altmetrics and innovative dissemination related to each other?

Some participants were concerned about innovative dissemination methods becoming communication mediums for scholarly outputs. The novel methods were described as ‘fireworks’ announcing other research outputs, rather than being the key outputs. In addition, in some fields (pure Mathematics) innovative dissemination might not be relevant as research outputs are meant for experts in the field and not the general public. Other participants noted the added value of innovative dissemination methods. For instance, by introducing and showcasing the work that is needed to produce a scientific publication through a video (in Physics, there are journals that allow uploading of videos of researchers showing the experiment conditions). Such practices bring science and researchers closer to the public. On the other hand, such dissemination efforts require a lot of time resources and specific skills, that researchers do not necessarily have or are willing to practice²⁷.

In the discussion on barriers to alternative metrics, the participants mentioned different scientific communities and different assessment cultures prevailing in these communities as well as the lack of awareness about alternative metrics in some of the scientific fields. Also, the lack of open and transparent data in alternative metrics was considered as an important drawback in fostering the uptake of such metrics.

Policy scenarios

After the discussion, Tony Ross-Hellauer presented the three policy scenarios for increasing uptake of innovative dissemination and alternative metrics: business-as-usual, top-down policy approach and a balanced approach. The participants were asked to reflect on the scenarios first as a group and then discuss them in smaller-group settings.

In the whole group discussion one participant commented that people’s interest and trust in science should not be underestimated. The scepticism has existed for many years, and social media only opened it up recently. However, the current situation does not provide evidence that the scepticism is increasing. Other participants noted that if the danger of science scepticism exists, more transparent and open practices could help address these issues of mistrust.

For the small group discussions, participants were asked to discuss the scenarios and which scenario they see as the most suitable policy option. Also, they were asked to select two questions from the following five and share their responses to these questions with the whole group:

- Q1. How can policy-makers create incentives for and strengthen monitoring of innovative dissemination and altmetrics activities?
- Q2. How can we build evidence on the efficacy of innovative dissemination and altmetrics? How can we ensure quality and fair use of data in altmetrics and innovative dissemination?
- Q3. How do gender and diversity issues relate to innovative dissemination and altmetrics?

²⁷ Vignoli, M., Rörden, J. (2018). Deliverable D4.2. [Role description: Dissemination to businesses and the public](#). OpenUP project

- Q4. Which national or international infrastructural initiatives could foster innovative dissemination and altmetrics?
- Q5. What dedicated support and training could improve uptake of these practices?

The groups decided to answer the questions in a numerical order, but some questions were omitted; question 2 (omitted by two groups) and question 3 (discussed briefly by one group).

For question 1, all groups recognised the need for incentives to promote the innovative dissemination and alternative metrics methods. One group proposed that researchers need qualitative incentives which would give them an opportunity to promote and increase the value of their work. For such incentives, a policy framework is needed that:

- defines financial incentives and awards,
- provides relevant skills;
- outlines promotion and outreach programmes to increase the level of awareness of innovative dissemination and alternative metrics among researchers.

Monitoring of innovative dissemination and altmetrics could be implemented by defining a dissemination plan during the research design stage and evaluating it at the end of the project. However, it is important to define and expand the assessment criteria that include other types of dissemination activities (not only scientific publications and conferences). Participants also noted that such criteria must be adapted to the specifics of different scientific communities.

Other groups suggested that incentives should be integrated across all the research flow, from proposal stage to the final outputs. Also, it is important to measure what one wants to improve. Research Excellence Framework in the UK was mentioned as a good practice case which promotes the use of a broader set of assessment criteria successfully. Groups 2 and 3 also seconded the opinion that the current methods used in research evaluation should be expanded and that national ministries and funders play a strong role in defining them. Policy makers can change they control the funding reorienting the research dissemination trends.

When addressing the second question, one group noted that there are significant flaws in the use of alternative metrics as the quality of a scientific paper cannot be measured. Open data and standards should be defined on how calculations of downloads are done, what is counted and what is eliminated from such calculations. In addition, there are trends (like the Altmetrics doughnut) that become fashionable for some time but can also rapidly disappear.

Question 3 did not generate strong discussions within the groups. One group mentioned that there is a perception that a new generation (younger researchers) are more receptive to novel ideas. However, they are still tied to the old system that impedes the uptake of the innovative methods.

Two groups discussed the 4th question. The participants noted that only infrastructures that create a critical mass can foster innovative dissemination and altmetrics – for example, arXiv. OpenAIRE has a potential, but it is a bubble of like-minded people and not used by all researchers. ORCID is gaining popularity although the critical mass is still not reached. Finally, ResearchGate represents another platform that is also very popular among researchers and widely used. In comparison, the institutional infrastructure and platforms are hardly taken up by researchers to the extent that ResearchGate is. EOSC also has the potential, although disciplinary differences among the scientific communities should be considered. These examples indicate that there is a need for an infrastructure that would match the needs of the specific research community (such as arXiv) and it should most likely be disciplinary, rather than national or international. In addition, one group commented that such infrastructure would need a one-stop-shop for institutions to be able to support their researchers. particularly this is important to smaller institutions.

The final question was addressed by all the groups and all participants agreed that researchers need a dedicated training and support service. Currently some training on scholarly communication, peer review and assessment is provided by publishers. But universities should strengthen their training efforts and adequate funding needs to be allocated for such activities. Libraries could be used for execution of such trainings. Participants from one group also noted that trainings need to be well-designed as ensuring researchers participation in them is very difficult.

Conclusions

After the discussions, the 3rd scenario gained the largest support by the participants of this breakout session. However, some participants noted that the 1st and 2nd scenarios also have important aspects that should be considered when designing policy recommendations. The bottom up approach or the business-as-usual scenario needs to be considered as gaining researchers' support for novel approaches is crucial. On the other hand, this could take a long time. A top-down policy would foster the implementation of new policies faster. Such an approach, however, should be combined with a good support and training network to avoid misunderstandings on the requirements.