Requirements to the Open Peer Review Platform

OPTIMA

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This report is based on extensive desk research and numerous consultations with experts from our partner countries. An important takeaway on the part of the authors who have some expertise on Open Peer Review (OPR) has been that it is elementary to understand the specific national, cultural, etc., conditions for implementing OPR systems. Understanding the specifics of the Ukrainian academic context, for instance, concerning the conditions for obtaining graduate and postgraduate degrees, would have been impossible without the help and dedication of the entire consortium and everyone else who took part in various rounds of requirements gathering exercises, consultations, and feedback rounds. The collection of vast qualitative materials that the authors were able to draw upon would not have been possible without the commitment of such a dedicated group.

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Executive summary

Aims: Specify contextual requirements for the development of an Open Peer Review (OPR) platform to be used in later OPTIMA activities, implementing open peer review processes at academic conferences in Ukraine to increase academic integrity and build a virtual community of reviewers.

Approach: EU experts from TU GRAZ, UCA and EIFL conducted two Open Science training workshops in Graz (March 2021) and Nice (June 2021) which were used to gather requirements for the OPR platform. This report summarizes the findings of these requirements gathering exercises. One day of each workshop has been devoted to gathering insights from Ukrainian project partners on the specifics of Ukrainian academia and their implications for the OPR platform development. Participants were asked for their input during two breakout sessions (one in English, one in Ukrainian) as well as two group discussions, one before, one after the breakout session. Requirements were collected using field notes and recordings of the sessions.

Recommendations: Start building a dedicated virtual community of peer reviewers. Include both English and Ukrainian reviews to widen the pool of reviewers. Make the review process as open as possible (but as closed as necessary). Support flexible workflows to enable specific conferences to tailor OPR systems to their needs. Be aware that scarcity of resources (especially of issue for displaced universities) may be problematic in implementing new OPR systems. Familiarize students with the elements and aims of OPR. Workflows should be flexible to enable reviewer anonymity where desired - for instance by making this optional for reviewers or maintaining anonymity until after reviews are completed (and then making the process open). Consider protecting anonymity of reviewers and authors until post-publication where possible. The existing platform OpenReviewHub (https://OpenReviewHub.org) provides an excellent basis from which to build OPR functionalities for the OPTIMA context. A new OPR platform will be created building upon OpenReviewHub (with extended functionalities for the OPTIMA context) using the modern Drupal 9 Open Source content management framework. Ensure compliance with GDPR and web accessibility issues. The platform should be flexible in the types of OPR models offered to allow communities to choose the workflows that best fit their disciplinary needs and readiness-levels. Define 3 model workflows with differing levels of openness (strong, medium, weak OPR). Assign conferences to one of these workflows to produce reusable data on the impact of various kinds of OPR. Foresee that individual conferences may wish tweaks to these workflows for their own circumstances; plan development time to accommodate reasonable requests. Create a dedicated engagement strategy. Create a dedicated research plan - how will data be collected, how will open science principles be followed, how will this research be communicated to inform the community?

1.   Introduction

This report specifies contextual requirements for the development of an Open Peer Review (OPR) platform to be used in later OPTIMA activities, implementing open peer review processes at academic conferences in Ukraine to increase academic integrity and foster a community of reviewers. The system of higher education (HE) in Ukraine is characterized by serious deficiencies, such as inefficient quality assurance and low levels of internationalization. Both affect educational attainment and reduce the country's general potential. A second acute problem currently facing the country's HE system is caused by the military conflict in eastern Ukraine. In 2014 the concept of "displaced higher education institutions" emerged as since the beginning of hostilities in the Donbass region, 18 higher education institutions (HEIs) have been moved from the temporarily ceased territories. The displaced HEIs managed to resume the educational process and now continue to educate over 40,000 students and employ about 3,500 academic staff (HE Portal, 2016). However, despite numerous achievements, problems of quality and integrity remain in the Ukrainian education system, harming society and economy (OECD, 2017). The Ministry of Education and Science understands the situation all too well, referring to academic integrity promotion as the "main bottom line" of QA mechanisms for Ukrainian HE (Hrynevych, 2019; CMU, 2019). Unfortunately, full implementation of these vital reforms is a highly demanding process due to a lack of recognition for values of academic integrity, as well as widespread disbelief in the need for change at the local level.

To rectify this situation, OPTIMA undertakes a diverse range of training and capacity-building activities that will embed Open Science principles in teaching and research. Integrity is based on the principle of transparency (Smith & Hamilton, 2016). Transparency is celebrated as the most important principle alongside integrity in the guidance documents of contemporary scientific (ALLEA, 2017) and educational (ENAI, 2018) communities. In the OPTIMA context, transparency refers to the disclosure of information, rules, plans, processes and actions (Velliaris, 2019). As a principle, all actors have a duty to act visibly, predictably and understandably to promote participation and accountability. Transparency and openness are the key ingredients to building and spreading integrity culture based on trust. Such a process of change requires time, especially given the inertia of academia in general.

Transparency is at the core of Open Science (OS), a global movement which is rapidly developing and has gained increasing EU-level recognition and popularity in recent years. OS is not an end but a means to support better quality science, increased international collaboration and integrity (wider evaluation, promotion of honesty and self-correction etc.) (OECD, 2015; RISE, 2017). These goals are highly relevant to Ukrainian HEIs and can be effectively applied in the wider academic context through fostering research integrity culture and practices among academic staff, students and administrators in order to improve education quality. Emerging first in the early 2000s as "Science 2.0" (Franzen, 2018; Mirowski, 2018), OS is an umbrella term for a multitude of assumptions about the future of knowledge production (Fecher & Friesike, 2014), encompassing a variety of meanings that range from publicizing research outputs (Open Access in its various forms) to making accessible all aspects of the research process (Fell, 2019), including data (Giffels, 2010), notebooks, analysis plans, and code (Ibanez et al., 2006; Ram, 2013) as well as research evaluation and peer review (Ross-Hellauer, 2017; Shanahan & Olsen, 2014). OS denotes a bundle of practices and associated key ideas such as reproducibility, accessibility, sharing, and collaboration (Vicente-Saez & Martinez-Fuentes, 2018). Free access to research outputs has been associated with better and more efficient science (Leonelli et al., 2015), economic growth (J. Tennant et al., 2016), and increased transparency of knowledge production (Gilmore et al., 2017).

OS promotes accessibility of scientific outputs to facilitate uptake, enhance the exchange of ideas and contribute to a more equitable scientific system. OS emphasizes the importance of collaboration and exchange within academia, but also with extramural societal actors, taking its point of departure in a critical analysis of what stands in the way of wide reuse of scientific knowledge as produced by conventional scientific practices. Among the benefits of OS practices for researchers have been cited increased citation

rates (Piwowar et al., 2007; Piwowar & Vision, 2013), increased media coverage (McKiernan et al., 2016), more transparent research evaluation (Beck et al., 2018; Pöschl, 2012), increased reproducibility (Toelch & Ostwald, 2018), increased control over research outputs through retaining copyright and publishing under Creative Commons (CC) licenses (McKiernan et al., 2016), and establishment of priority via preprints (Vale & Hyman, 2016).

The OPTIMA project addresses representatives of the Ukrainian academic community in diverse roles to advance the academic integrity culture via introducing more open and transparent practices. In particular, students and Early Career Researchers will learn how OS can be of direct benefit to their career development and help strengthen their international research profiles. Project outputs will empower them to embed OS principles in their research workflows on early career stages. A major element of OPTIMA's implementation and operationalisation of OS principles in Ukraine is the practical implementation of an Open Peer Review (OPR) platform to be used in Ukrainian academic conferences. Peer review is a ubiquitous research evaluation and quality assurance mechanism. Applying OS principles to peer review will raise standards of both. OPR for conferences is particularly suited for the delivery of OPTIMA's aims. It is obligatory for Ukrainian master students and early-career researchers to publish their research work in scientific journals and/or conference proceedings, where current standard "blinded" processes leave room for improvement. OPR will not only bring transparency to this familiar practice, but also create opportunities for hands-on learning of open principles. In order to achieve this aim, we plan to develop a web-based OPR service for academic conferences and create an international virtual community of researchers and reviewers within it. Implementation of the platform will boost Quality Assurance processes and mechanisms through the introduction and consolidation of open practices and improve management and internationalisation of Ukrainian HEIs through networking and community-building.

2.   Background: Open Peer Review

2.1.   What is peer review?

> "Peer review is the formal quality assurance mechanism whereby scholarly manuscripts (e.g. journal articles, books, grant applications and conference papers) are made subject to the scrutiny of others, whose feedback and judgements are then used to improve works and make final decisions regarding selection (for publication, grant allocation or speaking time). Peer review usually performs two distinct functions: (1) technical evaluation of the validity or soundness of a work in its methodology, analysis and argumentation (answering the question "is it good scholarship?"), and (2) assisting editorial selection by assessing the novelty or expected impact of a work ("is it exciting, innovative or important scholarship?", "is it right for this journal, conference or funding call?")." (Ross-Hellauer, 2017, p. 3)

Box 1: What is peer review?

Peer review is regarded by many as an important cornerstone of science. Some (e.g. Spier, 2002) trace its origins back to 1752, the year the Royal Society took over responsibility for the "Philosophical Transactions". However, this claim is disputed by some scholars who point out that peer review as a standardised, ubiquitous process in scholarly publishing was only widely implemented in the latter half of the 20th Century (Baldwin, 2015; Biagioli, 2002). Nature famously only introduced formal and systematic external refereeing in 1973 (Baldwin, 2015). Peer review constitutes the steward of the scientific record (Afzal, 2017), institutionalizing the Mertonian norm of organized skepticism (Merton, 1973). The role and functions of peer review are manifold, ranging from the institutional function of discriminating research proposals for funding priority (Lamont, 2009), institutional hiring practices as well as a quality control mechanism to aid conference chairs and journal editors. Peer review is therefore "the pillar on which all the resources of the science market, such as funds, reputation, and careers, are based" (Squazzoni, 2010, p. 8). However, the peer review system is undergoing rapid change (Guthrie et al., 2015) due to several trends including increased focus on research integrity, the rise of Open Science, and new possibilities due to digital tools and platforms (J. P. Tennant et al., 2017). Both the quality and the integrity of scientific papers have recently become the subject of intense debate, in part due to a (perceived) rise in irreproducible research (potentially due to questionable research practices), and with a particular concern for processes of institutional self-regulation in academia and their ability to flag misconduct (S. P. J. M. (. S. Horbach & Halffman, 2018). The peer review system has long been regarded as central to this mechanism of self-regulation. Some (e.g. Cronin 2005) have gone so far as to claim that peer review assures the trustworthiness, relevance, and value of science, while others (e.g. Smith 2006) have regarded these claims (to the effect that peer review is highly objective and reliable) as myths. Jefferson et al. (2002) found that peer review is frequently based on faith in its effectiveness, with scant evidence to back up that faith. In fact, there is resentment towards the practice in some areas of academia (Tattersall, 2015, p. 650); major differences in peer review systems between disciplines persist (Walker & Rocha da Silva, 2015), with particular difficulty ascribed to assessing the quality of research in the Social Science and Humanities (SSH) (Hug et al., 2013). For SSH, Lamont and Mallard (2005) conclude that bias and particularism extend beyond categories such as gender and region, as they enter the review process "through favoring epistemological styles and other cognitive categories" (ibid. p. 2), with interdisciplinary peer review providing an additional gateway for complications (Laudel, 2006). Despite its key role in academia, peer review has been subject to criticism in the past (Tattersall, 2015, p. 651), e.g. for being biased against specific types of authors and papers, for being unreliable (Daniel et al., 2007), slow (Huisman & Smits, 2017), and unable to detect fraud, and for lack of recognition for reviewers (Walker & Rocha da Silva, 2015). There is strong evidence for low levels of agreement between reviewers in traditional peer review; this has recently been studied for a small sample of journals with open review processes (Bornmann & Daniel, 2010).

Ross-Hellauer (2017, p. 4 f.) distinguishes six types of criticism that traditional peer review has been charged with:

1) Peer review is unreliable/inconsistent, levels of reviewer agreement are low (Bornmann et al., 2012; Herron, 2012; Kravitz et al., 2010), and decisions of rejection/acceptance are inconsistent (Ross-Hellauer 2017: 4), as are numbers of citations and journal quality (Jubb, 2016); peer review frequently fails to prevent errors or fraudulent materials from being published (Ross-Hellauer 2017: 4)

2) Peer review is expensive and tends to delay publication, slowing down availability of results for further research (Ross-Hellauer 2017: 4) as well as increasing overall costs

3) (Blind) Peer review lacks accountability due to ist "black-boxed" nature and lack of transparency, enabling editors to select reviewers based on particularistic criteria and reviewers to act in their own vested interest (Lee et al., 2013; Ross-Hellauer, 2017; Smith, 2006; Tattersall, 2015)[1]

4) Peer review perpetuates social and publication biases based on gender (Budden et al., 2008), affiliation (Dall'Aglio, 2006), language (Cronin, 2009), and discipline (Collins & Travis, 1991) as well as a preference for positive over negative results (Ioannidis, 2005)

5) There is a lack of incentives for peer reviewers as their work is usually unpaid (Tattersall, 2015)

6) Blind peer review is wasteful of important behind-the-scenes information such as discussions between reviewers and authors (Ross-Hellauer 2017)

Box 2: Criticisms of Peer Review

Standard (traditional) peer review is typically anonymous (either, single, double, or even triple blind), confidential (black-boxed), and selective (Ross-Hellauer & Görögh, 2019, p. 2).

Many surveys (see the respective section below) have found that researchers are in fact rather dissatisfied with the current model. Resulting from these widespread criticisms of traditional (single or double blind) peer review (Ross-Hellauer 2017, see box 2 above), a variety of changes have been suggested (e.g. Tennant et al. 2017), as evidenced by the growth of preprint servers, non-selective review, and new mechanisms for post-publication review (Walker and Rocha da Silva 2015). Many of these new forms of peer review have been labelled as "open peer review" (Ross-Hellauer 2017: 5), "an umbrella term for a number of overlapping ways that peer review models can be adapted in line with the aims of Open Science, including making reviewer and author identities open, publishing review reports and enabling greater participation in the peer review process" (Ross-Hellauer 2017). Ford's (2013) literature review of the OPR landscape found that there was no established definition of the term and practice accepted by the scholarly community, which has been seconded by (Ross-Hellauer 2017: 3): "OPR has neither a standardized definition, nor an agreed schema of its features and implementations".

Open identities peer review, where authors and reviewers are made aware of each other's identities, is not a new idea and has seen trial runs already in the 1990s, in the *British Medical Journal* as well as the *Journal of the American Medical Association* (Tattersall 2015), with *Nature* following in 2006. Armstrong seems to have been the first to use the phrase already in 1982 (Ross-Hellauer 2017: 5). Even within such early attempts to define openness in peer review, there are multiple factors at play, such as removing anonymity, publishing reports, interaction between participants, crowdsourcing of reviews, and publishing manuscripts before review (ibid.). As these remarks show, there seems to be a bewildering number of traits associated with OPR. Ford's (2013) survey identified a number of common OPR characteristics such as signed review, disclosed review, editor-mediated review, transparent review, and crowdsourced review, with additional

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[1] However, as Squazzoni (2010: 7, FN 2) has pointed out, the degree of accountability seems to be a function of community size and social cohesion, i.e. smaller communities tend to exert greater social control, thereby making deviant behaviour more risky for individuals.

characteristics for review timing (pre-, post-publication, and synchronous review, see Tattersall 2015). In a systematic review, Ross-Hellauer (2017) found 122 definitions of OPR, identifying seven individual traits (three primary, four secondary):

Primary aspects of OPR

- **Open identities:** Authors and reviewers are aware of each other's identity
- **Open reports:** Review reports are published alongside the relevant article
- **Open participation:** The wider community is able to contribute to the review process

Secondary aspects of OPR

- **Open interaction:** Direct reciprocal discussion between author(s) and reviewers, and/or between reviewers, is allowed and encouraged
- **Open pre-review manuscripts:** Manuscripts are made immediately available (e.g., via pre-print servers like arXiv) in advance of any formal peer review procedures
- **Open final-version commenting:** Review or commenting on final "version of record" publications
- **Open platforms ("decoupled review"):** Review is facilitated by a different organizational entity than the venue of publication

Each of these innovations has their own advantages and disadvantages and can be combined in various ways to produce a multitude of possible OPR systems (indeed, Ross-Hellauer 2017 reports 22 (actual) configurations of these traits within the reviewed literature). Ross-Hellauer and Görögh (2019) argue that OPR proposes to address a set of issues with standard peer review, identified in box 2 above. Within the OPTIMA project context, four OPR traits have been identified as paramount. We here give a brief overview of the proposed advantages and disadvantages of these four traits.

- **Open Identities:** Opening the identities of peer reviewers to authors can foster increased accountability (of reviewers) and quality (of reviews) by linking academic judgements to scholars' names (van Rooyen et al., 1999). The transparency gains this involves can help to solve conflicts of interest by disclosing them at an early stage. Additionally, open statements could foster more civil language throughout the review process (Bornmann et al. 2012). On the other hand, lack of protection through anonymity might cause reviewers to blunt their opinions for fear of reprisals. This is particularly pressing when the criticised scholar is more senior than the peer reviewer. The (more customary) blinded review process potentially protects reviewers from social biases (and possibly also authors in the case of a double-blind review process) (Ross-Hellauer 2017; Budden et al. 2008). However, survey results suggest resistance towards open identities, in particular from authors (Ross-Hellauer et al., 2017).
- **Open Reports:** Review reports contain valuable contextual information on the development of a paper/publication that is otherwise unavailable to readers. Additionally, usually being unavailable peer review reports are opened up to wider scrutiny which might lead to increased review quality (Ross-Hellauer et al., 2017). A blinded review process rules out receiving credit for reviewing papers (Beck et al., 2018) which is anyway an undervalued (but fundamental) part of academic work. Making reports transparent would also put an end to ghost-writing reviews and help early career researchers to receive proper training in writing reviews. On the negative side, higher rates of refusal to take on peer review can be expected from potential reviewers due to increased time required to write reviews and (possibly) fear of reprisal when reports are openly available (especially poignant for early career researchers/less senior researchers).
- **Open Participation:** Involving the broader community holds the potential to make the peer review process more inclusive, in particular through including traditionally excluded/marginalized groups. Further, open participation can support cross-disciplinary dialogue and avoid a silo mentality. The

most obvious benefit concerns increasing the number of (potential) reviewers. Since the Covid-19 pandemic in particular (but also before that), journal editors across the board have reported difficulties in finding appropriate (and willing) reviewers (Ross-Hellauer et al., 2017). However, there is also reason to believe that a large proportion of published research won't attract comments as it fails to attract any citations (the numbers vary by discipline though) (Tattersall, 2015, p. 651), a dynamic which may be exacerbated by the fact that only a select few academics seem to have embraced open peer review and there is evidence that suggests a "fear of openness" (Tattersall 2015: 652). Issues with self-selection familiar from social research are equally problematic for open participation, as there is no (established) mechanism to motivate potential reviewers to contribute. Additionally, self-selected reviewers tend to engage with the material to a lesser degree than reviewers selected by an editor. Open participation creates the additional problem (familiar from other forms of open, digitally mediated participation or information-gathering) of filtering relevant information from noise. This might create additional workloads and require additional resources to solve.

- **Open Manuscripts:** Open manuscripts refers to a mode of reviewing where manuscripts are publicly available before peer review (e.g. as preprints on designated preprint servers) (Chiarelli et al., 2019; J. P. Tennant et al., 2017). Especially since the outbreak of the Covid-19 pandemic, the (dis)advantages of preprints have come under scrutiny due to the rapid surge in their dissemination (particularly in medical fields) (Älgå et al., 2021). In some cases, the surge in preprints during the pandemic has also led to a speed-up in peer review processes (Fraser et al., 2021). However, the pandemic has affected the quality of peer review as well as the number of available peer reviewers (S. P. J. M. Horbach, 2021); in fact, editors found themselves having to relax the criteria for reviewers. This is dramatic in the sense that Covid researchers felt a lot of pressure to publish fast. Squazzoni found that women submitted fewer manuscripts during the first phase of the pandemic (mapping across 2000 journals). Many commentators stress that preprints enabled an increase in dissemination of vital results (Brierley, 2021); as opposed to traditional publications, preprints are available without having undergone a lengthy, often time-consuming peer review process that frequently involves multiple rounds of revision. In terms of receiving credit for one's work, preprints enable the assertion of priority as soon as a manuscript is written - a fundamental mechanism of allocating reputation and rewards in academia (Merton 1973). Additionally, without expecting comments and support from peer reviewers, it has been suggested that authors put more work into initial submissions of preprints, thus increasing the quality of their manuscripts. On the downside, acceptance of prerints varies considerably between fields (Klebel et al., 2020), with some notable exceptions, e.g. the Life Sciences (Cobb, 2017), Mathematics (Andersen, 2017), Physics (Annesley et al., 2017; Bhalla, 2016), Chemistry (Brown, 2003), and Computer Science (Teixeira da Silva, 2017). Preprints have been criticized precisely for not having undergone peer review (Balaji & Dhanamjaya, 2019), or there is a lack of understanding that results reported in preprints must be treated as merely provisional. Further, there is no established mechanism for retracting preprints should the respective manuscripts not get past peer review. However, these problems also pertain to traditional, peer-reviewed publications to some extent (Teixeira da Silva et al., 2021); there is no established retraction culture across academia (Fanelli & Moher, 2019) and even material that has been published then retracted often continues to be cited. As to the long-term effects of the Covid-19 pandemic with respect to Peer Review (speed-up of PR, pre-printing), it is unclear at present what the long-term impact on the peer review system will be (workshop day 3, field notes). In part, this is difficult to assess simply because there is no precedent to these events. As F. Squazzoni pointed out during the workshop (workshop day 3, field notes), one fundamental issue concerns the distortion of peer review and evaluation procedures due to disproportionate attention to Covid-related research being scaled down for the next generation of academics (workshop day 3, field notes).

2.2.   Attitudes towards and experiences with Open Peer Review

Despite the heavy criticisms sometimes wielded against peer review, the majority of scholars seems to agree that "peer review serves as a filter between 'good' and 'bad' science" (Horbach & Halffman, 2018, p. 2). However, Bornmann (2008) points out that large parts of work on peer review are insufficiently guided by theory, a charge that seems valid for more recent work as well. A 2008 survey on peer review (Ware, 2008) found that an overwhelming majority of respondents (85%) agreed that peer review improves scientific communication and that their own work had been improved by the process (90%). However, the same study also found that less than 32% of respondents were happy with the current system of peer review. While some (e.g. Lamont 2009) have stressed the social and cultural aspects of the peer review process to argue that what is needed is a more comprehensive view of the basic process of peer evaluation, others (e.g. Squazzoni 2010) argue in favour of experimental approaches to study (the interaction of) aspects of peer review. An important aspect of many of these studies of peer review has been incentivising and motivating the process (Ross-Hellauer et al. 2017). E.g., a study commissioned by Taylor and Francis in 2015 found that 60% of editors reported difficulty in finding reviewers. The 2008 study by Ware found that more than 25% of respondents believed peer review to be unsustainable due to a lack of willing reviewers.

Early surveys of attitudes towards OPR indicate (moderate) scepticism, with respondents harbouring clear preferences for blinded peer review (Ross-Hellauer et al. 2017: 4 f.). A 2015 survey by Taylor and Francis found growing support for OPR, with editors in SSH being more sceptical than STEM editors. A follow-up survey by Ware (Ware, 2015) found that researchers were increasingly supportive of OPR, in line with journals' experience of offering reviewers the choice of opting into open identities (Ross-Hellauer et al. 2017: 5). More recent work on the spread of OPR (e.g. Ross-Hellauer et al. 2017) found that many practices associated with it are already mainstream, suggesting good prospects for OPR to move mainstream, so long as certain provisions are followed (such as avoiding one-size-fits-all solutions, Ross-Hellauer et al. 2017). 76.2% of respondents reported having had practical experience with OPR either as author, reviewer, or editor. A round 60% responded that OPR should be common scholarly practice (ibid. p. 12). The authors record positive attitudes to most OPR traits, including open interaction, open reports, and open participation ("Will OPR Trait make peer review better, worse, or have no effect?"), with the exception of open identities (31% "will make peer review better"), open pre-review (41% "will make peer review better"), and open platforms (44% "will make peer review better"). However, respondents showed an equally strong rejection of open identities (47,7% against). Importantly, the same study found that over 56% of respondents were satisfied with the current system of peer review (with one fifth expressing dissatisfaction) (Ross-Hellauer et al. 2017: 11), while 44% indicated that "making reviewer identities open will increase the quality of reviews" (ibid. p. 15). Respondents were generally in favour of publishing reviewer reports, with 65% agreeing that open reports would provide useful information to reviewers and 60% believing that "Publishing review reports will increase the quality of reviews" (ibid. p. 15). However, 52% of respondents thought that potential reviewers "are less likely to agree to review for journals that publish reviewer reports" (ibid.).

Up to this point, our discussion has focused on peer review in general, which can be taken to refer to journal peer review more specifically. An important but sometimes overlooked form of peer review concerns research grants, as funding agencies increasingly rely on referees to distribute research funds through competitive processes (Gurwitz et al., 2014). Insofar as research funding is at stake, (in)transparency of the process is even more poignant than with editorial peer review. An increasingly important segment of studies of peer review concerns conference peer review, due to the relative importance of conference publications in fields such as computer science. We therefore turn to the potential for open conference peer review in the next section.

2.3.   How Open Peer Review for conferences might enhance academic integrity

Academic conferences play a fundamental role in Ukrainian higher education, as students are expected to publish a certain number of papers before they are awarded a degree. This is true at every level, from under- to postgraduate degrees. For this reason, conferences and conference peer review provide an excellent use case for gauging the effects of introducing Open Peer Review on research integrity, as in the Ukraine, these conferences fulfil an important educational function, in many instances providing students' first foray into the world of academic publishing. Given that publishing is indispensable for getting a degree, targeting conferences entails that the largest possible number of students will likely be reached. Open Peer Review is of particular interest here as traditional peer review rarely offers learning opportunities due to the black-boxed nature of traditional peer review. This situation is markedly different with Open Peer Review, as e.g. Open Reports entail more constructive reviews (more professionalism, e.g. Ross-Hellauer et al. 2017). We expect all elements of OPR that the project will implement (open identities, open reports, open participation) to have a similar effect, thereby serving to familiarize students with the workings of research evaluation at the level of academic conferences.

2.4.   Implementation

Ross-Hellauer and Görögh (2019) report best-practice guidelines for OPR implementation. The key advice is:

- ● A) Set your open peer review goal(s)
  - ○ A1. Decide what you would like to achieve with OPR
  - ○ A2. Acquaint yourself with the differences between the elements of OPR
  - ○ A3. Decide which elements you would like to implement
- ● B) Listen to research communities
  - ○ B1. Be conscious of, and sensitive to, community differences
  - ○ B2. Consider surveying community opinions
  - ○ B3. Communicate your goal with the stakeholders and research community
- ● C) Plan technologies and costs
  - ○ C1. Assess technological feasibility of various options
  - ○ C2. Assess the costs of various options
  - ○ C3. Consider workaround options for piloting
- ● D) Be pragmatic in your approach
  - ○ D1. Set priorities and consider a phased approach
  - ○ D2. Consider making options optional or piloting them first
- ● E) Further communicate the concept
  - ○ E1. Engage the community, especially via 'open champions'
  - ○ E2. Be aware that communication is key and terminology is important
- ● F) Evaluate performance
  - ○ F1. Have a clear framework for assessing success
  - ○ F2. Accept that change takes time, but adjust if necessary
  - ○ F3. Share your results with the community

Taking these implementation guidelines as a roadmap, this first deliverable report constitutes work primarily on elements A, B, and C (re-ordering A and B to address community aspects first), with some first thoughts (to be developed in later stages of the project) for elements D, E, F.

3.   Methods

EU experts from TU GRAZ, UCA and EIFL conducted two Open Science training workshops in Graz (March 2021) and Nice (May 2021) which were used to gather requirements for the OPR platform. This report summarizes the findings of these requirements gathering exercises. One day of each workshop has been devoted to gathering insights from Ukrainian project partners on the specifics of Ukrainian academia and their implications for OPR platform development. Participants were asked for their input during two breakout sessions (one in English, one in Ukrainian) as well as two group discussions, one before, one after the breakout session. Requirements were collected using field notes which were amended by SR and AR using recordings of the sessions. This section describes the day 4 workshop on OPR platform requirements.

The first group discussion involving all workshop participants was designed to define the goals for the OPR platform and centered around the following questions:
- What do we want to achieve in implementing the platform?
- How ambitious should/can we be?
- What will be the major difficulties for us?
- Specific issues regarding Ukrainian context, OPR for conferences, other?

The two breakout sessions (one in Ukrainian, one in English) were designed for participants to discuss the following questions (following the guidelines set out in Ross-Hellauer and Görögh 2019):

- Open Identities
  - Advantages and disadvantages
  - How this could contribute to OPTIMA
  - Priority for implementation?

- Publishing Reports
  - Advantages and disadvantages
  - How this could contribute to OPTIMA
  - Priority for implementation?

- Open Participation
  - Advantages and disadvantages
  - How this could contribute to OPTIMA
  - Priority for implementation?

A second plenary discussion was intended to summarize and collate the findings of the two breakout groups (as documented in the field notes). Participants were then asked to report on their attitudes (positive/negative) towards these three OPR elements and to present the results in a second and final plenary discussion designed to summarize and collate the findings of the two breakout groups. All English-language discussions (breakout and plenary) were recorded and documented in extensive field notes.

Limitations of the process: An obvious limitation - unanticipated by the workshop organizers and co-authors of this deliverable - has been a conspicuous language barrier. This was particularly salient during the group discussions where participation was restricted to a select few people (and likewise with the English-language breakout session). Participation was markedly more diverse in the Ukrainian-language breakout which suggests a language effect on discussion participation.

In addition, a second online workshop was conducted to gather knowledge from OPTIMA technical partners regarding technical requirements for the platform. The one-hour-meeting was recorded, and findings incorporated via field notes and supplementary conversations.

4.   Results

4.1.   Research communities and the OPTIMA context

> On the subject of engaging with and being responsive to research communities, the OPR Guidelines advise:
>
> **Be conscious of, and sensitive to, community differences:** Be conscious that there will be differences in perceptions and willingness among different research communities. Consider starting with particular disciplines that are more open to trial OPR, especially those where other journals in the field already use OPR.
>
> **Consider surveying community opinions:** Consider directly surveying community opinions regarding open peer review models to gauge attitudes. Alternatively, or as a complement to this strategy, consider targeted 'qualitative interviews' to gather insights from those with particularly strong opinions regarding open peer review.
>
> **Communicate your goal with the stakeholders and research community:** Engage communities to 'sell' the benefits of opening peer review and provide reassurances. Find keen researchers to work with and gauge interest in the model among communities. Include requests for community feedback to ensure alignment with researcher attitudes.

Box 3: Engaging target communities in OPR

4.1.1.   Specifics of the Ukrainian Context: OPR and Research Integrity

Although Open Science is very new to Ukrainian researchers, Ukraine is not starting from scratch in implementing open principles in academia. According to the all-Ukrainian survey conducted in spring 2020, almost 67% of young scientists (under 35 years of age for Ph.D. holders and 40 years of age for ScD holders) and almost 51% of senior scientists were unaware of Open Science, and only 6% (PhDs) resp. 9% (Senior Scientists) practice Open Science. The survey also highlighted awareness and involvement levels in Open Peer Review: more than 67% of young scientists and more than 53% of experienced scientists were unaware of it. Only about 2% resp. 6% practice Open Peer Review. The above-mentioned numbers suggest that Ukrainian young scientists (Ph.D. candidates, early-career researchers, and youth in science under 35) need even more support in adopting open academic practices.

Four distinctive features of Ukrainian academic culture were identified in the workshop that need to be accounted for with the OPR platform development:
1) The cultural context of Ukrainian academia differs significantly from other academic systems, most notably as concerns the relationship between students and professors which cannot be described as a peer relationship. At the same time, student conferences constitute an important academic passage point. In addition, problems of academic integrity pervade research and (higher) education. Accordingly, the platform needs to tackle both.
2) Universities enjoy degrees of freedom to pass their own regulations (autonomy). Changing policies at the local level can be exploited as an entry point for OPR (Nice workshop, field notes).
3) The role of English as the academic lingua franca: Levels of English proficiency are sometimes low, especially among senior staff. This needs to be taken into consideration as well.
4) The phenomenon of displaced universities exacerbates these problems and therefore needs critical attention.

In what follows, we will describe each of these problems in turn.

Students in Ukrainian Academia: The need for conference publications

An important take-away from the workshop was that a PhD defence in Ukraine requires publications, including in conference proceedings after personal participation (the so-called "approbation"). Hence, since academic events are also a relatively easy way to publish research outputs, conference peer review fulfils an important function with respect to fostering research integrity in the Ukrainian context. Submissions to conferences for young scientists (Nice workshop, field notes) constitute an important passage point in Ukrainian academia, and one that is encouraged and often obligatory for Ukrainian students, especially at the Master level. This suggests that conference peer review provides an excellent opportunity to introduce open practices as the greatest possible number of students will be reached. Additionally, being an obligatory passage point, making conference peer review open could encourage a more participatory, collaborative model of academia and introduce students at a very early career stage to the advantages of openly dealing with criticism. In fact, as F. Squazzoni has pointed out (workshop day 3, field notes), learning to accept and deal with rejection is an important aspect of maturity as a researcher, as rejection (by reviewers or by journals) forces researchers to refine their ideas, which then (ideally) improve in the process. This is an important aspect of why the OPTIMA project focuses on conferences (day 4 field notes). As was pointed out during the Nice workshop, student conferences actually used double-blind peer review so they can be used as a training ground for providing OPR. These conferences don't have a lot of formal procedures to follow dictated by universities.

Importantly, conference peer review includes two levels of quality assurance: 1) plagiarism checks (which pertains to research integrity proper) and 2) scientific quality evaluation (peer review proper). As has become clear during the workshop, currently both of these are problematic. Therefore, participants expressed great hopes that introducing more open forms of research evaluation in these conferences might lead to better outcomes, both in terms of the quality of submissions as well as in terms of increasing research integrity (reducing instances of plagiarism). In terms of performing the reviews and receiving criticism, an important downside of the Ukrainian academic system surfaced during the workshop that concerns the traditionally rather distant relationship of Ukrainian students and their professors (workshop day 4, field notes). Participants concurred that criticism received should be as constructive as possible, which is not the case with many reviews being either meaninglessly positive or overly negative (workshop day 4, field notes Ukrainian). Students are hardly regarded as peers which threatens to put them in a difficult position, in particular (but not only) when they are expected to provide reviews themselves. On the other hand, once the platform and community are functional, they might be used beyond the current conference peer review system. For students in particular, this could provide opportunities in terms of finding mentors beyond their formal supervisors (workshop day 4, field notes).

Language: English or Ukrainian or both?

Implementation of the OPR platform, along with a devoted community of reviewers, will be affected by the fact that the English language has become the (more or less undisputed) lingua franca of large parts of academia. Of course, this is not to say that there are no national publishing circles. In fact, this is the case for many SSH disciplines, and there are also national publishing communities in STEM fields as well. However, given the need to implement a community of reviewers along with the platform, workshop participants saw a clear need to switch to English, not least because of the impossibility to otherwise attract international peer reviewers (workshop day 4, field notes) as one of the main aims of building an international community is to expand the pool of reviewers. This does not mean that Ukrainian language contributions need to be ruled out completely, because the level of proficiency with the English language was described as rather low, in particular among senior staff members (workshop day 4, field notes). The problem is even more acute when smaller communities are concerned. Incidentally, these are the ones that would, according to workshop participants, benefit most from an international pool of reviewers, as they are extremely used to a situation where interaction is restricted to a very small group of people (workshop day 4, field notes) which

tends to invite bias and favouritism. Incidentally, this does not always mean mutual collaboration, of course, but mutual awareness in most cases. One workshop participant pointed out that in some fields, Ukrainian-language text corpuses of prominent Ukrainian scientists tend to be heavily curated, which entails that critical articles (which accordingly are unknown in Ukraine) by Ukrainian researchers are not part of that person's reputation. In a wider sense, then, this implies that there is at present no culture of retraction (which certainly is not specific to Ukraine, but the extent is different). The same pertains to other open practices such as data sharing (which, again, is not specific to Ukraine). There seems to be a need for cultural change then, in the sense of teaching people how to retract graciously (workshop day 4, field notes).

Discussions from the Nice workshop point to a certain parochialism within Ukrainian academia. Participants pointed out that career paths envisioned by Early Career Researchers could impact OPR implementation. To be sure, some want to collaborate with people abroad, but others are more local-minded. Incidentally, this might also affect the results of student courses without any fault of their organizers. At any rate, these remarks point towards a strong culture of not collaborating with foreigners in Ukraine which entails that many Early Career Researchers and undergraduate students don't think working internationally is within their reach as they are expected to only work locally. In addition, there are few role models for an international mindset. In this way, the achievement of some OPTIMA aims may be intimately linked to the career paths our target group imagine for themselves. Where students don't see their career outside Ukraine, they may be less inclined to engage in an international system (as OPR would have to be). This aspect of Ukrainian academic culture has implications for the wider possibilities for the community of peer reviewers to normalize cross-border collaboration in Ukraine (Nice workshop, field notes). These advantages notwithstanding, some participants pointed out that expansion via admitting international reviewers, along with the need to switch to the English language, would put certain fields (SSH in particular) at a disadvantage (workshop day 4, field notes): Certain SSH fields rely much more heavily on publishing in the respective vernacular due to their subject matter, a problem which does not seem to be acute in most STEM fields. In addition, there do exist close connections (by way of citations, but also in terms of research community membership) to neighbouring countries such as Moldova. There, inviting reviewers to the OPR platform might mean that researchers from these countries would want to take advantage of the platform as a publishing opportunity.

4.1.2.   Incentives and Governance Structures of Ukrainian HEIs

As was pointed out during the Nice workshop, scientific activities in Ukraine (as elsewhere, one might add) are very formalized. In fact, the aim of many academic activities is to reach some KPI resp. to fulfil some contract clause. These activities are frequently governed using KPIs or other kinds of metrics. Consequently, it was pointed out that it won't be possible to motivate researchers to participate in reviewing without any formal KPI integration. Rewards and recognition touches upon a broader issue with peer review more generally, which is often unrewarded (at least formally). On the other hand, as has been discussed above, academics generally agree on the fundamental role of peer review for the academic system. The process is usually conceived as abstractly reciprocal: you have to review to be reviewed. With OPR, workshop participants felt that a formal integration of the system is needed, and vice versa for journals. This means that OPR should be more geared towards journals since authors care about getting published, not about getting reviewed. (Nice workshop, field notes). The upshot of the discussion was that OPTIMA needs to consider how we arrive at a more formal recognition of the new system. In general, the issue of how to reward or incentivize Open Practices is a huge topic, and the extent to which OPTIMA addresses that is not clear. One possibility would be to add open reviews to ORCID, but then getting this criterion into assessment procedures is another story that would involve changing assessment procedures. Realistically, OPTIMA will be able to produce recommendations to policymakers, drawing on connections of consortium members to the ministry and to Ukrainian members of parliament (Nice workshop, field notes). However, it needs to be pointed out that implementing recommendations is time-consuming so that it may be easier to implement OPR communities OPR in local universities.

4.1.3.   Displaced universities and resourcing issues

Another important takeaway from the workshop concerns resources. While these are anyway an issue in Ukraine, the situation is worse for what have come to be known as the displaced universities, i.e. those institutions that have been forced to move their staff and students from their original locations mainly due to the hostilities in the Donbass region. In fact, while participants concurred that displaced universities, by and large, suffer from similar problems in terms of research integrity, their situation is exacerbated considerably by the fact that they are displaced which means that there is a scarcity of resources (such as basic IT infrastructure, equipment). This entails that given the OPTIMA aim of introducing OPR for the entire Ukrainian academic system, the level of support that needs to be provided will be higher for displaced universities.

Recommendations
1. Start building a dedicated community of peer reviewers.
2. Find a way to include both English and Ukrainian reviews to widen the pool of reviewers.
3. Make the review process as open as possible (but as closed as necessary) to foster awareness of integrity issues in Ukrainian students.
4. Support flexible workflows to enable specific conferences to tailor OPR systems to their needs (e.g., disciplinary issues).

Be aware that scarcity of resources (especially of issue for displaced universities) may be problematic in implementing new OPR systems.

Box 4: Recommendations for engaging target communities in OPR

4.2.   OPR Goals and elements for inclusion

> In terms of setting open peer review goals, the OPR Guidelines suggest:
> 1. **Decide what you would like to achieve with OPR:** What do you want to achieve? How? For which reasons? Answering these questions first will enable you to orient your engagement with OPR.
> 2. **Acquaint yourself with the differences between the elements of OPR:** As discussed above, 'open peer review' can mean different things to different people. As a first step, familiarise yourself with the differences between each of these elements.
>
> **Decide which elements you would like to implement:** Being clear on your primary goals and relating them to specific elements of OPR will enable you to begin to build a provisional strategic plan for OPR implementation. Further refine this by studying existing models and OPR implementations through publisher websites, published literature, presentations and online resources.

Box 5: Setting goals for OPR

4.2.1.   OPTIMA aims

The key aim of the OPR platform is to improve academic integrity and quality in student conferences in Ukraine by making peer review processes more visible. Overall, the OPTIMA project proposes that the introduction of more open and transparent practices will lead to increased academic integrity, which will in turn lead to improved education quality. The following section details the challenges faced by Ukrainian student conferences that will be addressed via the OPR platform introduction. Here, it is necessary to point out an inherent tension within OPTIMA between tackling problems associated with research integrity, and problems associated with higher education. Plagiarism in particular seems to fall into both categories. Introducing Open Peer Review (OPR) has the biggest potential in Ukraine as it brings transparency to the already familiar practice of academic evaluation and provides hands-on learning opportunities for early career researchers (ECRs), helping to build new skills under collective mentorship of international experts. Hence, we plan to develop and implement an online OPR platform for academic conferences (as they provide additional face-to-face promotion opportunities, journals don't) and build an international virtual community of peer reviewers and researchers on the base of it. Indeed, the implementation of Open Peer Review in the Ukraine can be regarded as a test run for the Ukrainian research system and an indicator of its maturity and readiness for further global integration (workshop day 3, field notes). To date, there is scant evidence for the efficacy of implementing similar systems at the country level (even though there is a variety of work on this issue at the level of disciplines/research fields, see e.g. REFs). The work in OPTIMA will therefore add significantly to the research landscape as well.

4.2.2.   Familiarity with OPR concepts

Step 2 - gaining acquaintance with the different elements of OPR - was achieved through the Graz workshop where all consortium members were trained in the various OPR options. With the remainder of this section, we consider the OPTIMA aims and how these should relate to the OPR elements introduced above for implementation. To begin with, consultations were held with participants regarding defining elements of OPR (open identities, open reviews, open participation). There, participants pointed out that the OPR platform is intended to serve two fundamental aims: 1) to improve the quality of reviewers' reports as well as 2) to foster academic discussion. Therefore, it was stressed that potentially harmful behaviours (in terms of giving criticism) need to be eliminated (respectively discouraged) through the platform design. In particular, participants favoured an "Air B'N'B" approach to openness where identities would be disclosed after the process to give reviewers a moratorium in between writing a review and making an impact, all in the spirit of creating a safer environment for everybody (workshop day 4, field notes). This does entail that all names/reports would be published eventually, but the identities of all involved parties would remain protected during the process which participants felt would also shield reviewers from undue influence during the review process (workshop day 4, field notes). Importantly, the OPR platform needs to ensure that both

sides - reviewers and authors - are protected from undue influence; participants felt that this would be a key feature to promote open academic debate and increase research integrity (workshop day 4, field notes). The OPTIMA OPR platform will therefore aim towards 1) increasing the quality of reviews while 2) protecting reviewers' anonymity throughout the review process to 3) foster a culture of academic integrity. As has been pointed out in the Nice workshop, while academic integrity is indeed a fundamental concern for OPTIMA, its connection to traditional, double-blind peer review (which does not always ensure the publication of original and relevant research results) needs to be explored further. To wit, consortium members felt that double-blind peer review does not in fact form a sufficient prerequisite for reviewer integrity as well as work ethic. This suggests that OPR holds the potential to foster research integrity, in particular within (but not limited to) Ukrainian academia.

 We discuss these aims and how they relate to elements of OPR in turn.

4.2.3.   Increasing the quality of reviews

Workshop participants underlined the importance of OPTIMA's strategic aim for the OPR platform to increase review quality and quality of conference submissions by increasing the visibility and transparency of review processes. The provision of a safe environment is key to achieving these aims and to fostering more discussion. Some workshop participants pointed out that open data could go towards the same aim of more general transparency of research evaluation (workshop day 4, field notes). A possible workaround could be the introduction of special reproducibility tracks for conferences. As has been pointed out in the previous section, the culture of research data sharing and reproducibility is low in Ukraine (a feature that is not specific to Ukrainian academia, to be sure). Consequently, the inclusion of open data principles in initial implementation of the OPR platform can only be a secondary goal. While participants concurred that such an aim would be laudable indeed, it was suggested that implementation follow agile principles here, so the provision of open data might not be a requirement for the initial implementation (workshop day 4, field notes). However, implementation could serve a didactic purpose in the sense of preparing conference audiences for this aspect of open science practices. Indeed, educating a new generation of reviewers so that they will be able to deal with the next generation of researchers is an explicit goal of the OPTIMA project, as is building a full stack of open reviewers (especially since young researchers are familiar with social media). The whole concept of an ideal OPR system is inherently about best practices and about pulling the review process from the shadows for Ukrainian conferences (workshop day 4, field notes). As participants pointed out, the problems posed by predatory conferences and other violations of academic integrity are a different matter that is beyond the reach of the OPR platform. In terms of what the platform should be able to do, participants of the day 4 workshop concurred that at a minimum, it should enable open discussions and comments post-publication (workshop day 4, field notes). Participants felt that at present, academic conferences provide limited time to interact with presenters. As some people have difficulties speaking up during public discussions (making Q&A sessions difficult), open interaction would be beneficial in the sense of enabling interaction with authors/presenters for many more people (in the form of a written comment section for example) (workshop day 4, field notes). In addition, participants felt strongly about the role of open reviews in fostering academic scientific excellence (workshop day 4, field notes). In particular, it was pointed out that providing a review or a comment to a submission was essentially a public service; an open review approach would therefore also enable good practices of public service provision.

In the Nice workshop it was pointed out that requirements for reviewers should be popularized more broadly. Reviewers for Ukrainian journals are expected to do widely different things, i.e. there is a lack of unified strict standards for reviewers in Ukraine, even within disciplines (what to look for in a submission, say). These norms for reviewing should be popularized at the journal level, not at the level of student tuition. In fact, much of what is required of reviewers remains tacit because expectations are firmly established; this practice is problematic for journals of a more general scope because it entails that reviewers may not be familiar with these tacit standards. In fact, this seems to constitute a limit to Open Peer Review, as making it likely won't

be affected by making reviews open. In OPTIMA, this needs to be addressed most likely at the technical level, in the form of the instructions given to reviewers on the platforms. (Nice workshop, field notes)

4.2.4. Anonymity of reviewers: Difficult for journals and small academic communities, easier for conferences

As has been pointed out during the workshop, OPTIMA talks about review for conferences rather than journals (workshop day 4, field notes). OPR seeks to dispense with the anonymity of traditional peer review in several ways, i.e. via open identities, open reports, open manuscripts, and open participation. Therefore, the day 4 workshop was geared towards understanding Ukrainian partners' attitudes specifically towards these elements of OPR. One main reservation of the Ukrainian partners with respect to the OPR platform surfaced in the workshop: participants worry that academics in Ukraine would have difficulty imagining a system where reviewers aren't anonymous, and that this would pertain mostly to small academic communities (workshop day 4, field notes) – however, communities are so small that people always know who their reviewers are anyway. This implies serious reservations towards open identities. Open reports can be associated with different levels of transparency; the ideal to strive towards might be described as fully open interaction and fully open review where participants to the discussion eventually become co-authors and/or are acknowledged in the paper. The authors of this report are aware that this is indeed very idealistic; when asked about the prospects for introducing open identities in Ukraine, most felt that this would depend to a large extent upon the specificities of the academic community in question, e.g. on the state of academic discussion inside the academic community. Where there are no discussions within communities, some participants expected OPR to promote them. Participants from Croatia in particular expressed reservations towards implementing this level of transparency (workshop day 4, field notes).

Participants expressed scepticism towards the idea of open reviews and open manuscripts, for various reasons (Graz workshop day 4, field notes). As has been mentioned above, the aim is to improve the quality of reviewers' reports as well as to foster academic discussion. Participants therefore concurred that there was a need to eliminate potentially harmful behaviours through design decisions. Effectively, then, participants valued protecting reviewer identities over openness, suggesting that identities should only be disclosed after the process to give reviewers a sort of moratorium in between writing and making an impact. This means that while all names/reports would be published eventually, during the process everybody could be protected so that there is no way to influence reviewers. It was therefore suggested to set reasonable thresholds for the process as making the manuscript open right away after publishing/disclosure of reviewer identities right away was considered problematic (workshop day 4, field notes). OPR platform development should therefore take potential threats associated with disclosure of identities into consideration.

The question of the degree of reviewer anonymity was picked up again at the Nice workshop as: Should reviewer identities be open or not? In a weaker system this would be optional but could also be closed until the end of the process. While this was regarded as an interesting idea, participants expressed reservations with respect to open identities actually avoiding the problems associated with reviewers being known from the beginning (issues of anonymity). Some expressed concerns that once a reviewer's name was known they would have to deal with adversity. Effectively, participants felt that open identities would only postpone the problem (Nice workshop, field notes). Letting reviewers choose was discussed as a potential workaround here that the consortium could explore (see below the section on technical workflows). As before, the group had more support for models where reviewer identities would only be revealed post-publication (Nice workshop, chat). Others pointed out that especially for small journals in Ukraine, OPR might be problematic as they tend to operate with small pools of reviewers which might deter potential authors, causing said journals to quickly return to closed peer review (with implications for its ability to grow a reviewer base). Having said this, the problem might not be so pressing for conferences as there rarely are multiple rounds of reviews; however, the threat of simply postponing the anonymity issue is certainly real. As a reference

number for OPTIMA, within Peer Community In, only 39% of reviews have open identities. Hence, the consortium felt that identities should only be made open for accepted papers.

On the other hand, academic careers do not only depend on the reviews one gives. In fact, there might be other risks associated which the consortium is not in a position to tackle. In the spirit of fostering cultural change, however, many consortium members felt that while making open identities optional might be favoured by authors, it may not be wise in terms of promoting transparency as authors will always favour closed identities. Open identities may even be required to allow the system to slowly adjust.

4.2.5.   Rewards and Incentives

Rewards and incentives for peer reviewers are of general interest to studying peer review. In this respect, participants of the Nice workshop pointed out the frustration sometimes associated with volunteering a peer review in cases where there is no recognition. Since there are not enough volunteers to review, this lack of recognition is highly problematic (Nice workshop, field notes). This is changing, however, as now there is recognition on ORCID which is positive in terms of acknowledging the contribution of reviewers (both for themselves but also their institutions). As has been pointed out during the Nice workshop, issues pertain to the entire recognition system in academia. Rewards for peer reviewing was also the topic of a consultation by Eurodoc with Early Career Researchers. One outcome was that peer reviewers are seldom rewarded resp. don't feel recognized at all. However, it was also pointed out that often, recognition does not have to be big or formal (i.e., some just need "a pat on the shoulder"). Importantly, some platforms attempt to implement recognition for peer review. For instance, PUBLONS tries to recognize reviewers' efforts e.g. in the form of giveaways as a "thank you'' for a large number of high-quality reviews. This approach resembles gamification of peer review, which can happen e.g. via badges. OPTIMA will be in a position to recommend strategies on rewards, in particular with respect to the reward system at the local/university level of university policies about conferences and publishing. This relates back to university autonomy mentioned above which provides an entry point for Open Peer Review. Effectively, the consortium is advised to look into local governance at particular institutions in terms of changing policies at the local level.

4.2.6.   Communication and community building: Benefits of an OPR Platform

A final consideration regarding the Ukrainian academic context concerns building an academic community of reviewers and the question of which conferences to target. Both questions refer back to what has been said above regarding the Ukrainian academic system as well as the issues associated with the phenomenon of displaced universities. Ideally, then, building a community of peer reviewers will involve different regions of Ukraine, including conferences from displaced universities. Given what has been said above about differences in OPR support across fields, this task should ideally involve a large number of disciplines (the OPTIMA grant agreement mandates five disciplines). Language constitutes an important strategic consideration in terms of community building. At a minimum, the OPR platform should enable English-language reviews. Whether or not reviews should be restricted to English is at present an open consideration.

Recommendations
1. Familiarize students with the aims of OPR.
2. Familiarize students with the elements of OPR.
3. Anonymity is a key issue; hence, workflows should be flexible to enable reviewer anonymity where desired - for instance, by making this optional for reviewers, or maintaining anonymity until after reviews are completed (and then making the process open).
4. Go in small steps. Consider protecting anonymity of reviewers and authors until post-publication where possible.

Conferences are less problematic than journals in terms of community size/integration but nonetheless present implementation issues (motivating participation, training students on OPR issues, moderating OPR workflows) which must be addressed in later steps.

Box 6: Recommendations for setting OPR goals

4.3.   Technical/Workflow considerations

Under the advice "Plan technologies and costs", the OPR guidelines specify: ● **Assess technological feasibility of various options:** A deciding factor in prioritising elements of openness to include will be the technical possibilities of your system. If the electronic editorial office and production/publication systems and workflows cannot currently be easily configured for OPR elements, they may be difficult and/or expensive to implement. ● **Assess the costs of various options:** Recognise potential costs in advance as development costs may be a major barrier. Ask yourself: Which options does your system already support, and do you have the technical staff or resources to fund system development? ● **Consider workaround options for piloting:** In testing phases, it may be preferable to start small with workarounds rather than immediately extending the whole publication architecture. Consider, however, that the sub-optimal nature of workaround solutions may then become an inhibiting factor in the success of the experiment.

Box 7: Technical recommendations for implementing OPR

4.3.1.   OpenReviewHub current functionalities

Within the OPTIMA workplan, for reasons of technical skills and resources within the consortium, the decision has been made that the OPR system to be developed will use the OpenReviewHub platform (www.OpenReviewHub.org) as a starting point. We here describe the current core functionalities of the existing platform:

● **Backend:** OpenReviewHub is currently based on the Drupal CMS framework, which has the advantages of flexibility and customizability, and is adaptive, accessible, and multilingual. Drupal is also easily scalable, has in-built features for ensuring security, and is Open Source (with a large community for support issues). The currently implemented version, Drupal 7, will only be supported until November 2022 and upgrading to the latest secure version (Drupal 9) is problematic due to the lack of updated versions for several software modules currently used. The plan is to leave the OpenReviewHub system as it is and to use it as a reference point for developing the basic functionality of a new system (under a new domain name including "OPTIMA" or similar). Hence, to ensure security, the new system will be based on Drupal 9 from the very beginning. This provides a perfect opportunity for the development of new features as specified in this report (regarding flexibility, scalability, and usability) to optimise the new platform for the OPTIMA context.

● **Site structure:** OpenReviewHub is currently organized as a set of subsites. Each individual conference hence has its own subsite with specific information, subpages and archive of papers from the current and previous years of the conference. We plan to retain this structure in the new system.

- **Users:** There are four levels of user hierarchy, each with different sets of permissions. This model can be extended in the new system if needed, e.g. with introduction of "Recommenders" level as was noted during the communication with guest speakers representing PeerCommunityIn, a successful French OPR initiative, during the Nice workshop. The four user hierarchy levels are:
    1. *Author*: The most basic user type
    2. *Reviewer*: Authors can become reviewers via submitting an application (need approval from Secretary or Editor) and acquire the ability to review papers
    3. *Secretary*: Has administration rights for the conference, can assign reviewers and manages his/her specific conference(s)
    4. *Editor*: Has administration rights across the whole platform and is able to manage all conferences
- **Reviewer pool:** OpenReviewHub curates a review community of registered users on the platform. Users can request to be added to this pool; or can invite external people to become reviewers by creating an invitation. An ORCID profile is required to become a reviewer. We plan to keep this "reviewer pool" model in the new system.
- **Metadata:** The metadata for each paper is structured conventionally with keywords, abstracts, DOIs and attached reports.
- **Workflows:** The current OpenReviewHub has hosted three conferences to date, all of which used the following submission workflow (cf. Fig. 1) without offering any flexibility to the conference organizers:
    1. Conference is created and curated as a subsite of OpenReviewHub.
    2. Authors submit full texts of conference papers, which undergo triage (basic checks for relevance and quality) by one of the conference secretaries.
    3. If suitable for the conference, the Secretary authorises the submission. The abstract/paper is published as a preprint on the platform (open manuscripts) and enters the Open Peer Review workflow. In addition, all registered OpenReviewHub users can comment upon the submission (open participation).
    4. Reviewers are identified from the platform reviewer pool and contacted to request review.
    5. Reviewers post their reviews, which are immediately publicly visible online (open reports), along with their names and affiliations (open identities).
    6. If reviewers recommend rejection, the submission is rejected, and the preprint deleted from the platform.
    7. If reviewers request revisions, the author is notified.
    8. Author submits revised manuscript to the platform.
    9. The Conference programme committee meets to collectively decide upon acceptance/rejection for the conference. The number of positive reviews must be the number of negative reviews plus two. If the submission is rejected, the preprint is deleted from the platform.
    10. If accepted, a decision is made whether to include the manuscript in the Conference Proceedings or in the Materials section.
    11. Proceedings papers are published with DOIs; however, this expense was covered by Lviv Polytechnic and so only covers specific conferences.
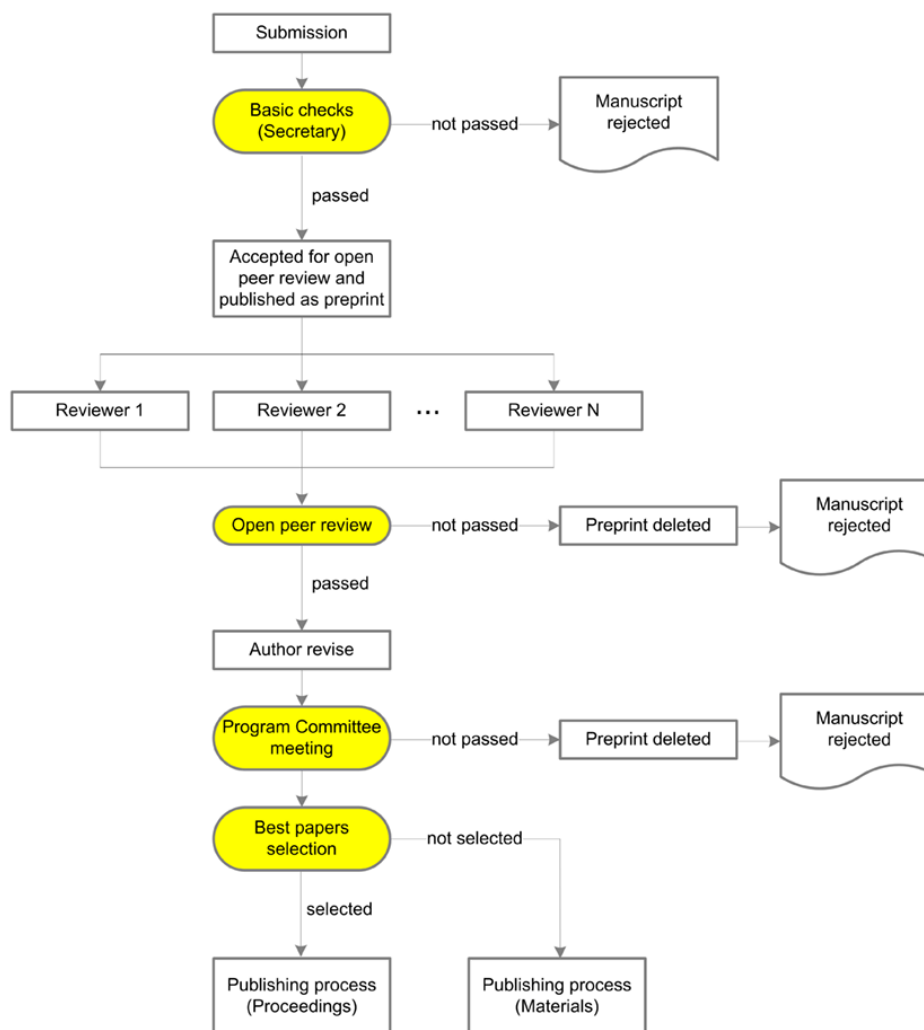
Figure 1: Current OpenReviewHub submission workflow

4.3.2.   Assessment of future development requirements

The availability and sufficient "maturity" of Drupal 9 provides a perfect opportunity to build a new flexible platform using the basic OpenReviewHub functionality as a starting point. The modular nature of Drupal will mean customizability will be possible. At the moment, the OpenReviewHub includes all key elements of OPR without flexibility. However, in OPTIMA, more flexibility should be given. OPR comes in a lot of flavours, implementing all elements at once may jeopardise engagement and adoption rates by conferences and researchers. The platform should rather introduce and exemplify the new approach of OPR practices, educating and disseminating OPR in a way that is sensitive to the needs and attitudes of specific communities. For example, always requiring that manuscripts be open right away, or that reviewer identities be always immediately disclosed may inhibit adoption. Given this and the above understanding of the OPTIMA context, flexibility in workflows for different conferences is desirable. Especially, consideration should be given that open identities and open manuscripts may be optional for some conferences – or at least that disclosure is delayed until after acceptance. However, implementing this workflow flexibility must be balanced with the limited availability of resources in the project. Hence, a pragmatic solution may be to implement three separate workflows, allowing for differing degrees of openness depending on the context. Individual conferences can then select one of these three options depending on their community needs. Some bespoke customisation may then still be possible for individual conferences, depending on developer resources. These workflows should be designed in the next phase of the project.

Project partner WUST has previously implemented a conference webpage based on the Syskonf system: https://ssc2020.syskonf.pl/. The service offers a lot of customization options and may be useful as another reference point for the new OPTIMA platform.

In addition, there are key considerations regarding GDPR and web accessibility. Appendix 1 includes key information and consideration for ensuring compliance in these regards.

The following considerations will be important when designing and implementing these workflows:

Users

- How to verify platform users - reviewers and authors? University addresses? ORCID? Other?
- Is user pre-moderation required?
- What user roles and which permissions should we have?
- What information should users be required/encouraged to provide? For example, reviewers indicating keywords/field of expertise during registration would be helpful.

Manuscript submission system

- Should other Open Science practices also be encouraged within specific workflows. For example, should open data be a requirement for submission?
- Do we require the submitting authors to confirm that the article is original, has not been submitted or published elsewhere, does not contain plagiarism or work by others not listed as authors (ghost writing), or anything else?
- Checks on plagiarism, excessive self-citation, conflicts of interest required at this stage?
- What editorial checks are required on resubmission of the paper?
- What level of justification and documentation is required of desk reject decisions?
- When submitting a paper, should authors suggest reviewers, indicate specific people who should not review, or indicate the fields of expertise from which reviewers should be drawn?
- Are manuscripts/abstracts made available immediately online if they pass this stage?
- How will reviewers be identified and notified of the review request?

Open Peer Review system

- Who is eligible to become a reviewer? How international should the reviewer pool be? By what criteria will reviewers be selected?
- What deadlines should be imposed for the reviewer to complete their review? How/when will reminder notifications be sent?
- How structured should reviews be? Should there be questions that the reviewer must answer (did you check the formulas, did you recalculate whether the study is replicable, does the conclusion contain conclusions or follow from the body of the article, does the abstract really inform the body of the article).
- Implementation of a structured review form (possibly with star ratings)?
- Should reviewers be able to provide comments directly to the editor/organiser or only to the authors?
- Can the author exchange correspondence with the reviewer during the review (if so, publicly or not)?
- Allow other users to rate reviews?
- When reviewing, are the identities of the author and reviewer already known? At what point in the process do we reveal identities?
- Should authors be required to publish a statement responding to the reviewer and identifying what changes have been made in response?
- Should there be a system for evaluation of reviewers and their work (review or reviewer ratings systems)?

- Can the community discuss the manuscript during peer review or only after (with anonymity or not)?
- Should reviews be published with the decision in all cases or only positive ones?
- How can we reward reviewers for their contribution/work to the community - i.e. conducting reviews? (E.g., incentive systems, vouchers/discounts for publications, free conference attendance, certificates for reviewers with data on the number of reviews performed)

Open discussion and community activity

- (Verified) users can comment on published papers? Pre- or post-acceptance?
- Levels of comment moderation required? Can comments be deleted? If so, what information is left online about this fact (e.g. comment deleted by moderator / author)
- Should comments be editable by users after posting?
- Should other users be able to react to comments beyond commenting (e.g., likes, upvoting)?
- Should there be a wider user forum (e.g., for community announcements like calls for papers, etc.) Limits on who can post?

Publication

- What is the publication workflow? What metadata standards are required to aid discovery? Should DOIs be assigned to all articles? Should DOIs be assigned to reviews?

Recommendations
1. The existing platform OpenReviewHub provides an excellent reference point to build basic OPR functionalities for the OPTIMA context.
2. The new platform will be built with a secure Drupal 9 CMF according to the newly identified requirements.
3. Compliance with GDPR and accessibility issues must be ensured
4. The new platform should be flexible in the types of OPR models offered to allow communities to choose the workflows that best fit their disciplinary needs and readiness-levels in terms of open practices.

Box 8: Recommendations for implementing OPR

4.4.   Priority setting

> Under the heading "**Be pragmatic in your approach**", the OPR Guidelines (Ross-Hellauer and Görögh 2019) advise:
>
> - **Set priorities and consider a phased approach:** Be flexible and choose your battles carefully. Change is difficult and you may run into problems if you try too many things at once. Your communities may be more receptive to some elements than others, and so, prioritising the areas you would like to change and being prepared to compromise from the ideal situation or at least take a phased approach may help you maintain traction and community buy-in. It will also make it easier to systematically assess the success or otherwise of any particular innovation.
>
> **Consider making options optional or piloting them first:** For elements you would like to introduce but think might prove controversial, you could make them optional. Thereby, it is possible to signal your support for this innovation while allowing reviewers or authors to opt-out. Note, however, that default policies may significantly affect outcomes—if the default policy is opt-in, this might lead to lower participation than if the default were to opt-out, for instance.

Box 9: Setting priorities for implementing OPR

Based on a workshop with selected Ukrainian partners to discuss technical OPR platform requirements, we found that there is a need to be flexible and offer more than one workflow to ensure community buy-in across different disciplines and readiness to adopt OPR. As has been discussed extensively in the background section above, there are multiple elements to OPR that can be implemented to varying degrees, creating a multiplicity of available OPR models (see also Ross-Hellauer 2017). In particular, different degrees of openness will have to be implemented (or at least implementable) to accommodate the varying needs of research communities in managing openness/anonymity. OPTIMA will therefore opt for a flexible strategy where the OPR platform will allow for the configuration of different degrees of openness (i.e. different combinations of the elements of OPR in different degrees, e.g. strong, middle, and weak implementation), where the configuration will be in the hands of the platform providers, not necessarily the academic conferences. This approach can even be combined with an experimental design (e.g. randomizing the assignment of a fixed number of OPR trait combinations to academic conferences) to produce randomized data (e.g. in the form of reviews) on OPR implementation. The OPTIMA consortium will look into this option. In addition, customization of OPR models will enable the implementation team to take the needs of different academic communities into account. This will also be based on considerations of which elements different communities will most likely be receptive towards. In terms of pilot testing, a customization approach would mean a pilot study by default, allowing for the collection of meaningful data on OPR review acceptance, along with impact of different OPR models on academic integrity, broadly conceived.

As has become clear in the Nice workshop, it will be difficult to establish the desired flexibility of workflows on the level of authors. Therefore, this will be implemented only at the level of conferences.

In particular, based on the above, we will specify, develop and implement three key OPR workflows (strong, medium, weak) within the platform. We intend to remain agile in the implementation of these, but as a first indication, we may suggest the following features would be implemented at each level:
- Strong OPR: based on the current OpenReviewHub workflow, this would include open abstracts/manuscripts (open online from time of submission), open reports (reports published immediately online), open identities (identities of reviewers and authors known to each other from the beginning of the process), as well as elements of open participation and commenting (all registered users will be able to comment on abstracts/manuscripts/review at all stages).
- Medium OPR: abstracts/manuscripts (open online from time of submission), open reports (reports published after acceptance), open identities (identities of reviewers and authors known to each other

but only after acceptance), as well as elements of open participation and commenting (all registered users will be able to comment on abstracts/manuscripts/review at all stages).

- Weak OPR: abstracts/manuscripts made open only upon acceptance, review reports published only for accepted contributions, open identities optional for reviewers (possibly only appearing after the process has been completed), discussion/comments allowed only for specific users.

Recommendations
1. Define 3 model workflows with differing levels of openness (strong, medium, weak OPR).
2. Assign conferences to one of these workflows to produce reusable data on the impact of various kinds of OPR.
3. Foresee that individual conferences may wish tweaks to these workflows for their own circumstances; plan development time to accommodate reasonable requests.

Box 10: Recommendations for OPR priority setting

4.5. Further communicate the concept

The OPR guidelines advise:

Engage the community, especially via 'open champions': Once you have decided on the model you'd like to move to, you have your communities on board, and have prioritised which OPR elements to implement, you will still need to sell your communities on the concept. As a general strategy, you should engage with the research community to find academics who are enthusiastic about OPR to be 'open champions' in advocating to their peers—for example, by engaging people who responded positively to your initial community consultation. Moreover, the arguments above in favour of the various aspects of OPR will help sell the concept, especially with regard to increasing transparency, enhancing credit for review activities and demonstrating and (although this is an understudied area) potentially enhancing the quality of reviews.

Be aware that communication is key and terminology is important: Misunderstandings could derail processes. As the stewards of the peer review process, editors have a duty of care to ensure reviewers and authors fully understand the systems of peer review in which they participate and its potential advantages and disadvantages. Use editorials, webinars, infographics and/or blog posts to articulate decisions and justify why these decisions have been made. Formulate clear policies which are easily findable on relevant webpages for authors and reviewers.

Box 11: Communicating OPR

Engaging and motivating conferences organisers and participants to take up the OPR platform will require a dedicated engagement strategy. This should be developed in the next stage of the project. In terms of rollout, the consortium needs to create a dedicated engagement strategy and to decide upon the target conferences and the target communities (which conferences? How to build a community of reviewers?)

Recommendations
1. Create a dedicated engagement strategy

Box 12: Recommendations for communicating OPR

4.6.   Evaluate performance

> The OPR guidelines advise:
> - **Have a clear framework for assessing success:** There is a need to track review quality and acceptance rates to monitor how OPR affects processes. As said above, it is good to decide a vision for the kind of peer review you want in the context of your end-to-end publication workflow and then prioritise goals in order to reach this vision. A key part of this planning should be deciding how you will define and evaluate success. Have a clear framework for assessing success ('of what on whom', so on specific measures and specific population clusters). Systematically collect data and study the impact of the practice on journal performance. Key questions could be the following: Is review quality improved? Is it more difficult to find reviewers? Are review times impacted? Are open reports being consulted and re-used? It is also advisable to consult with your journal community once the new process has been in place for some time, perhaps via survey, to gauge the development of their attitudes towards processes. Important here is to establish ex ante which quantifiable measures or performance indicators will be used for internal analysis. Outcomes should always be considered on an appropriate time scale, however. Change takes time.
> - **Accept that change takes time, but adjust if necessary:** Bear in mind that cultural change takes time, and so, even where uptake is not as quick as wished, the broader ethical aims of transparency and accountability in scholarly publishing might make persistence desirable in spite of low uptake. However, if things really are not working, then it may be necessary to re-evaluate your goals in light of lessons learned.
>
> **Share your results with the community:** Giving updates on progress will enable community engagement, keeping authors, reviewers, editors and publishing staff updated on the progress of your initiative. These updates will also help others decide whether and how to implement similar approaches. There is currently a lack of real scientific evidence on the efficacy of many traits of OPR. Once enough evidence has been gathered, consider writing up the results as a scientific study for peer-reviewed publication. Alternatively, consider partnering with peer review researchers from the start to ensure data is well-formed for such analyses and to enable rigorous external scientific analysis.

Box 13: Evaluation of OPR implementation

An important additional consideration concerns the collection of (quantitative and qualitative) data based on workflow implementation. As has been explained, OPTIMA will implement three different OPR workflows based on a continuum from weak to strong open peer review. In part, this idea was born out of a consideration for the different readiness levels to be expected across target communities based on academic culture, community size and structure (see above). So far, the OPTIMA project has 3 conferences in mind, all of which are hosted by LPNU. Indeed, the consortium will limit the selection of conferences hosted by partner universities to 1 conference per partner. (Nice workshop, field notes) In terms of benchmarking, the project will need to move beyond Ukrainian conferences as there won't be any data that can be used, but benchmarking could be achieved in different ways, such as asking peer community in to provide figures. Participants to the workshop agreed that the Ukrainian scientific community is very young, so there won't be many opportunities for benchmarking. The issue of operationalizing academic integrity was also discussed; there, the consortium agreed that this will be achieved via consultations with all partners (Graz, Lviv, Sumy) in a focus group approach to talk about academic integrity and generate data. /Nice workshop, field notes)

Since the platform will not be configured in such a way that conferences can choose their own workflows, this means that we as a consortium are thereby able to measure, compare, and possibly quantify the impact of each of the different implementations on indicators of academic integrity. Conveniently, any information needed to gauge impact on academic integrity would already be in the system by default. A viable strategy to investigate this would involve content analysis on peer reviews received before and after making the system open. A further, but more demanding, possibility would be to perform sentiment analysis. Through

building a modular and thus easily configurable platform, the consortium is able to run these kinds of experiments relatively easily. We therefore propose to define 3 workflows (the sample involves a total of 15 conferences, hence 5 conferences per workflow), split conferences randomly and assign each to one workflow. Effectively, this heavily constrains the choices of conferences regarding the workflows. However, aside from the research possibilities offered by this route, granting every conference the admin rights necessary for them to configure the workflows by themselves seems prohibitive at the outset.

In terms of reproducibility, assigning conferences randomly to workflows would be an advantage. Additionally, at this there is not much known about conference profiles in terms of openness. For instance, if the consortium considers 3 medical conferences, each should simply be randomly assigned one of the 3 workflows. At any rate, the consortium does not expect any strong regional differences. That being said, the issue of displaced universities definitely needs to be taken into account in the sampling strategy, as the proposal mandates that the platform needs to support at least 10 conferences, 6 of which need to be organized by displaced universities. Finally, measuring the effects on academic integrity is going to be a challenge, but the consortium intends to use workarounds such as surveys which are any way planned in the project. It was also suggested that evaluation could be externalized, e.g. through inviting independent people to evaluate the output of the conferences which have been assigned to different OPR strategies. If external evaluators can find no noticeable differences in the quality of the output, this is a sign that the exact OPR strategy might not have a large effect. (The effect on the level of individual works or individual authors should be a different question with some interesting causal structure.)

Recommendations
1. In the spirit of evaluation, assign conferences randomly to one of the workflows.
2. Evaluate & gauge the impact of the 3 OPR models on academic integrity.

Create a dedicated research plan - how will data be collected, how will open science principles be followed, how will this research be communicated to inform the community?

Box 14: Recommendations for evaluating OPR implementation

5.   Conclusion and recommendations

Based on the considerations laid out above, we recommend, first and foremost, that the OPR platform be developed so as to allow for the configuration of three model OPR workflows (weak, medium, and strong Open Peer Review. We advise against giving participant conferences a choice as to which model they get to implement. Rather, conferences should be assigned randomly to one of these three groups. Given that there are 15 participant conferences, this means we will have 5 conferences per group. While this certainly restricts choices by the conferences, the strategy also entails that we will be able to systematically gather data about the effects of different OPR models. Therefore, the consortium will be able to perform a controlled evaluation of the three OPR models based on quantitative data pulled directly from the platform (e.g. in the form of reviews given). Additionally, this provides ample opportunity for experimental designs, as the control conditions may be varied across conferences. In terms of reviewers, there is a pressing need for the participant Ukrainian universities to go ahead and develop reviewer communities as this will be key for the success of the platform and the OPTIMA project at large. Participants pointed out that the OPR platform is intended to serve two fundamental aims: 1) to improve the quality of reviewers' reports as well as 2) to foster academic discussion. All recommendations we developed are geared towards one or both of these aims. This is a comprehensive list of all recommendations given above:

1) Start building a dedicated community of peer reviewers.
2) Find a way to include both English and Ukrainian reviews to widen the pool of reviewers.
3) Make the review process as open as possible (but as closed as necessary) to foster awareness of integrity issues in Ukrainian students.
4) Support flexible workflows to enable specific conferences to tailor OPR systems to their needs (e.g., disciplinary issues).
5) Be aware that scarcity of resources (especially of issue for displaced universities) may be problematic in implementing new OPR systems.
6) Familiarize students with the aims of OPR.
7) Familiarize students with the elements of OPR.
8) Anonymity is a key issue; hence, workflows should be flexible to enable reviewer anonymity where desired - for instance, by making this optional for reviewers, or maintaining anonymity until after reviews are completed (and then making the process open).
9) Go in small steps. Consider protecting anonymity of reviewers and authors until post-publication where possible.
10) Conferences are less problematic than journals in terms of community size/integration but nonetheless present implementation issues (motivating participation, training students on OPR issues, moderating OPR workflows) which must be addressed in later steps.
11) The existing platform OpenReviewHub provides an excellent reference point from which to build OPR functionalities for the OPTIMA context.
12) The new OPR platform should be developed on the basis of Drupal 9 and functionalities extended for the OPTIMA context.
13) Compliance with GDPR and accessibility issues must be ensured
14) The platform should be flexible in the types of OPR models offered to allow communities to choose the workflows that best fit their disciplinary needs and readiness-levels in terms of open practices.
15) Define 3 model workflows with differing levels of openness (strong, medium, weak OPR).
16) Assign conferences to one of these workflows to produce reusable data on the impact of various kinds of OPR.
17) Foresee that individual conferences may wish tweaks to these workflows for their own circumstances; plan development time to accommodate reasonable requests.
18) Create a dedicated engagement strategy
19) In the spirit of evaluation, assign conferences randomly to one of the workflows.
20) Evaluate & gauge the impact of the 3 OPR models on academic integrity.

21) Create a dedicated research plan - how will data be collected, how will open science principles be followed, how will this research be communicated to inform the community?

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7.   Annex: GDPR and web accessibility issues

7.1.   GDPR Issues

There are at least 4 basic requirements related to the GDPR:
1. legality of data processing,
2. implementation of the data subjects' rights,
3. security of data processing,
4. principle of accountability.

Ad 1) Legality of data processing

Requirements for lawfulness of data processing were set out in Article 6 of the GDPR. In accordance with the principle of accountability, the controller must demonstrate that he meets at least one of these conditions.

Ad 2) Implementation of the data subjects' rights

The standards of implementing (exercising) the rights of an individual (data subject) has been set out in Article 12 of the GDPR. They are:
1. legibility of communication,
2. documented authentication,
3. deepened authentication,
4. documented communication,
5. facilitating the exercise of rights,
6. handling unidentified data,
7. monthly response time,
8. monthly deadline for refusing to act,
9. three-month limit for reaction status, refusal to handle excessive requests,
10. fees for excessive requests,
11. icons.

The exercising of the rights of the individual must be demonstrated in accordance with the principle of accountability.

Ad 3) Security of data processing

The controller and the processor shall implement appropriate technical and organisational measures to ensure a level of security appropriate to the risk connected with processing of personal data. They should take into account:
1. the state of the art in scope of data security (especially processed in IT systems),
2. the costs of implementation of technical and organisational security measures,
3. the nature of processing,
4. the scope of processing,
5. the context of processing,
6. the purposes of processing,
7. the likelihood (probability) of violating rights and freedoms of natural persons (data subjects),
8. the severity of the consequences of violating rights and freedoms for natural persons (data subjects).

According to the Article 32 of the GDPR, the measures that can be implemented by the controller or the processor are:

1. the pseudonymisation and encryption of personal data,
2. the ability to ensure the ongoing confidentiality, integrity, availability and resilience of processing systems and services,
3. the ability to restore the availability and access to personal data in a timely manner in the event of a physical or technical incident,
4. a process for regularly testing, assessing and evaluating the effectiveness of technical and organisational measures for ensuring the security of the processing.

In assessing the appropriate level of security account shall be taken in particular of the risks that are presented by processing, in particular from accidental or unlawful destruction, loss, alteration, unauthorised disclosure of, or access to personal data transmitted, stored or otherwise processed.

Adherence to an approved code of conduct or an approved certification mechanism may be used as an element by which to demonstrate compliance with the requirements set out above.

The controller and processor shall take steps to ensure that any natural person acting under the authority of the controller or the processor who has access to personal data does not process them except on instructions from the controller, unless he or she is required to do so by Union or Member State law (authorization to data processing).

Ad 4) Principle of accountability

According to the Article 30 of the GDPR, each controller and, where applicable, the controller's representative, shall maintain a record of processing activities under its responsibility.

The obligation shall not apply to an enterprise or an organisation employing fewer than 250 persons unless the processing it carries out is likely to result in a risk to the rights and freedoms of data subjects, the processing is not occasional, or the processing includes special categories of data as referred to in Article 9(1) or personal data relating to criminal convictions and offences referred to in Article 10 of the GDPR. The purpose of the register of data processing activities is to comply with the GDPR, therefore it is recommended to keep it, even if the GDPR does not require it. The register of data processing activities is "a data processing map". It also fulfills an information function, as it is a source of information about data processing processes in an organization, e.g. for the needs of a supervisory authority.

That record of processing activities shall contain all of the following information:

1. the name and contact details of the controller and, where applicable, the joint controller, the controller's representative and the data protection officer;
2. the purposes of the processing;
3. a description of the categories of data subjects and of the categories of personal data;
4. the categories of recipients to whom the personal data have been or will be disclosed including recipients in third countries or international organisations;
5. where applicable, transfers of personal data to a third country or an international organisation, including the identification of that third country or international organisation and, in the case of transfers referred to in the second subparagraph of Article 49(1), the documentation of suitable safeguards;
6. where possible, the envisaged time limits for erasure of the different categories of data;
7. where possible, a general description of the technical and organisational security measures referred to in Article 32(1).

Each processor and, where applicable, the processor's representative shall maintain a record of all categories of processing activities carried out on behalf of a controller, containing:

1. the name and contact details of the processor or processors and of each controller on behalf of which the processor is acting, and, where applicable, of the controller's or the processor's representative, and the data protection officer;
2. the categories of processing carried out on behalf of each controller;
3. where applicable, transfers of personal data to a third country or an international organisation, including the identification of that third country or international organisation and, in the case of transfers referred to in the second subparagraph of Article 49(1), the documentation of suitable safeguards;
4. where possible, a general description of the technical and organisational security measures referred to in Article 32(1).

The records shall be in writing, including in electronic form.

The controller or the processor and, where applicable, the controller's or the processor's representative, shall make the record available to the supervisory authority on request.

7.2.   Accessibility

1. Provide text alternatives for non-text content (all non-text content that is presented to the user has a text alternative that serves the equivalent purpose).
2. Captions (prerecorded) (captions are provided for all prerecorded audio content in synchronized media).
3. Audio Description or Media Alternative (prerecorded) (an alternative for time-based media or audio description of the prerecorded video content is provided for synchronized media).
4. Meaningful Sequence (when the sequence in which content is presented affects its meaning, a correct reading sequence can be programmatically determined).
5. Sensory Characteristics (instructions provided for understanding and operating content do not rely solely on sensory characteristics of components such as shape, color, size, visual location, orientation, or sound).
6. Use of Color (color is not used as the only visual means of conveying information, indicating an action, prompting a response, or distinguishing a visual element).
7. Audio Control (if any audio on a Web page plays automatically for more than 3 seconds, either a mechanism is available to pause or stop the audio, or a mechanism is available to control audio volume independently from the overall system volume level).
8. Contrast (minimum) (the visual presentation of text and images of text has a contrast ratio of at least 4.5:1).
9. No Keyboard Trap (if keyboard focus can be moved to a component of the page using a keyboard interface, then focus can be moved away from that component using only a keyboard interface, and, if it requires more than unmodified arrow or tab keys or other standard exit methods, the user is advised of the method for moving focus away).
10. Three Flashes or Below Threshold (Web pages do not contain anything that flashes more than three times in any one second period, or the flash is below the general flash and red flash thresholds).
11. Page Titled (Web pages have titles that describe topic or purpose).
12. Language of Page (the default human language of each Web page can be programmatically determined).
13. Language of Parts (the human language of each passage or phrase in the content can be programmatically determined except for proper names, technical terms, words of indeterminate language, and words or phrases that have become part of the vernacular of the immediately surrounding text).
14. On Focus (when any user interface component receives focus, it does not initiate a change of context).
15. Consistent Navigation (navigational mechanisms that are repeated on multiple Web pages within a set of Web pages occur in the same relative order each time they are repeated, unless a change is initiated by the user).
16. Error Identification (if an input error is automatically detected, the item that is in error is identified and the error is described to the user in text).
17. Error Suggestion (if an input error is automatically detected and suggestions for correction are known, then the suggestions are provided to the user, unless it would jeopardize the security or purpose of the content).
18. Parsing (in content implemented using markup languages, elements have complete start and end tags, elements are nested according to their specifications, elements do not contain duplicate attributes, and any IDs are unique, except where the specifications allow these features).