



**European Cooperation
in the field of Scientific
and Technical Research
- COST -**

Brussels, 22 November 2013

COST 079/13

MEMORANDUM OF UNDERSTANDING

Subject : Memorandum of Understanding for the implementation of a European Concerted Research Action designated as COST Action TD1306: New Frontiers of Peer Review (PEERE)

Delegations will find attached the Memorandum of Understanding for COST Action TD1306 as approved by the COST Committee of Senior Officials (CSO) at its 188th meeting on 14 November 2013.

MEMORANDUM OF UNDERSTANDING
For the implementation of a European Concerted Research Action designated as
COST Action TD1306
New Frontiers of Peer Review (PEERE)

The Parties to this Memorandum of Understanding, declaring their common intention to participate in the concerted Action referred to above and described in the technical Annex to the Memorandum, have reached the following understanding:

1. The Action will be carried out in accordance with the provisions of document COST 4114/13 “COST Action Management” and document COST 4112/13 “Rules for Participation in and Implementation of COST Activities”, or in any new document amending or replacing them, the contents of which the Parties are fully aware of.
2. The main objective of the Action is to improve efficiency, transparency and accountability of peer review through a trans-disciplinary, cross-sectoral collaboration.
3. The economic dimension of the activities carried out under the Action has been estimated, on the basis of information available during the planning of the Action, at EUR 64 million in 2013 prices.
4. The Memorandum of Understanding will take effect on being accepted by at least five Parties.
5. The Memorandum of Understanding will remain in force for a period of 4 years, calculated from the date of the first meeting of the Management Committee, unless the duration of the Action is modified according to the provisions of section 2. *Changes to a COST Action* in the document COST 4114/13.

GENERAL FEATURES**Initial Idea:**

Peer review is a cornerstone of science, whose quality and efficiency depends on a complex, large-scale collaboration process, which is sensitive to motivations, incentives and institutional contexts. Recent proofs of the failures of peer review, due to judgment bias and parochialism and cases of misconduct, have contributed to calls for a reconsideration of the rigour and quality of the process. This Action aims to improve efficiency, transparency and accountability of peer review through a trans-disciplinary, cross-sectoral collaboration. The objectives of this Action are: (i) to analyse peer review in different scientific areas by integrating quantitative and qualitative research and incorporating recent experimental and computational findings; (ii) to evaluate implications of different models of peer review and to explore new incentive structures, rules and measures to improve collaboration in all stages of the peer review process; (iii) to involve science stakeholders in data sharing and testing initiatives, (iv) to define collaboratively a joint research agenda that points to an evidence-based peer review reform. Not only can a better peer review system improve the self-regulation processes of science to benefit all science stakeholders, it can also increase the social recognition and credibility of science in Europe.

Keywords: Peer review, models of peer review, peer review reform, transparency, bias, science stakeholders, cross-sectoral collaboration, cross-methodological research, incentives, reviewers, scientific misconduct, scientific publishing systems, data sharing

STRATEGY**Objective 1 (A.1) - Type:Development of a common understanding/definition of the subject matter**

1. Science and Technology Coordination, Short-Term Scientific Missions (STSM).
2. Internal and External Communication, Website.
3. Stakeholders Outreach, including Unwritten Inputs and Dissemination, to business.
4. Joint peer-reviewed publication , open access.
5. Achievement of Specific Network Features in terms of WG Composition, expertise.

Objective 2 (A.6) - Type: Achievement of a specific tangible output that cannot be achieved without international coordination (e.g. due to practical issues such as database availability, language barriers, availability of infrastructure or know-how, etc.)

1. Stakeholders Outreach, including Unwritten Inputs and Dissemination, to business.
2. Documents to be Used as Input to Stakeholders, to enterprises.
3. Achievement of Specific Network Features in terms of WG Composition, sector of employment.
4. Science and Technology Coordination, Short-Term Scientific Missions (STSM).

Objective 3 (B.11) - Type: Around a topic of scientific and/or socio-economic relevance, allowing for knowledge exchange and the development of a joint research agenda.

1. Achievement of Specific Network Features in terms of WG Composition, sector of employment.
2. Science and Technology Event or Meeting, Action Conference.
3. Science and Technology Event or Meeting, Training School.
4. Internal and External Communication, Participation to Activities of Other Networks.
5. Science and Technology Coordination, Application for Framework Programme Funding.

A. CHALLENGE

Peer review is a cornerstone of science. Whether directly or indirectly, it determines how the resources of the science system—including funding, positions, and reputation—are allocated. While it is decisive to guarantee that quality can endogenously self-regulate through a decentralized and distributed trial and error process, it rests upon a complex mixture of social norms, rules and incentives that can be maintained only through a collective effort. It is worth noting that in 2011 more than 1.8 million articles were published in peer reviewed journals, while electronic submission and online publishing have led to an explosion of submissions and journals. This poses serious problems for the rigour and quality of the peer review, with all possible negative consequences in terms of misallocation of funds and reputation in the science system potentially caused by misbehaviour, bias or excessive overloading.

Recent proofs of the failures of peer review, due to judgment bias and parochialism and cases of misconduct have contributed to calls for a reconsideration of the rigour and quality of the process.

For example, a group of scientists from South Korea published an article on stem cells in “Science” in 2005 which was based on falsified data. The myopic attitudes of certain editors, influenced by "aggressively seeking firsts" and the lack of commitment and time of nine referees determined an inaccurate decision that took about half of the typical decision time for this very influential journal. More recently, the Stapel scandal in the Netherlands—in which data for numerous studies conducted over a period of 15-20 years and published in many top journals in the field of social psychology were found to have been fabricated—gained public notoriety in newspapers and on social media. On December 17, 2012, “The Scientist” published a top science scandal list, with cases ranging from data falsification and technical errors to creative reviewing strategies, also testifying to the dramatic increase of manuscript retractions.

Although these cases are still the exception rather than the rule, they have caused a misallocation of reputational credit in the science system, with negative consequences for competition and resource allocation. Given that scientific development follows incremental paths, publishing false findings might have serious long-term consequences even in terms of inappropriate technological applications or misplaced policy decisions. Second, such cases also carry serious consequences for the credibility of science in the perceptions of external stakeholders.

A first problem is that, despite its importance, peer review has been studied unsystematically. Social science qualitative research by sociologists, anthropologists and historians has discussed the complexity of peer review, including the difficulty of defining excellence and innovation, the presence of subjectivity in peer judgment and the strength of certain institutional and cognitive bias (e.g., disciplinary orthodoxy, Matthew or Ivy-League effects). While providing rich, in-depth accounts on scientists’ perceptions, negotiation of meaning and decisions, these studies looked only at specific cases, mostly concentrated on grant proposals and did not measure the quality and efficiency outcomes of the process. On the other hand, quantitative studies by scientometrics and computational science scholars provided certain measures of cognitive and institutional bias and looked at aggregate consequences of the process (e.g., link between peer review and citations) but were penalized by limited access to data on the mechanics of the process and underestimated behavioural and qualitative aspects.

This made the achievement of general findings extremely difficult and favoured a gap between the understanding of singular features of the process and the analysis of their consequences for the

science system. For instance, unethical behaviour and misconduct have been mostly explained in terms of external conditions, such as growing competition between scientists or the increasing complexity of knowledge generation processes, rather than as consequences of the peer review process. Recently, innovative experimental and computational studies found that bias and sub-optimal outcomes of peer review (e.g., resource misallocation and "old boyism") might depend on the strategic behaviour and motivation of scientists, mainly due to the scarce transparency of the process and the presence of weak incentives for reviewers. By better exploring the mechanics of the process, research suggests considering the influence of behavioural and institutional factors and also examining peer review from within.

A second problem is that a systematic integration between theoretical investigation and empirical data, the coordination of dispersed knowledge into a coherent framework and the promotion of adequate cross-methodological, trans-disciplinary research require collaboration between science stakeholders (e.g., academic teams and publishers or funding agencies) in data sharing. Not only did the lack of data on peer review induce the widespread perception of relative opacity and scarce transparency of the process, motivating some analysts to consider peer review as a black box without any "experimental base", it also has penalized the generation of rigorous and cumulative research and condemned all important attempts of reform to be pursued only by means of trial-and-error and generally only in isolation.

The need for collaborative initiatives to reconsider the complex process of knowledge generation, evaluation and sharing in science has been hinted at in certain EU initiatives, such as QLeCtives (Quality Collectives - FP7 - FET), which aims to explore new collaboration platforms for science on a large-scale, and LiquidPub (LiquidPublications: Scientific Publications meet the Web FP7 – FET), which aims to explore new web platforms for knowledge evaluation. Motivated by the publication of the highly influential "Eighth Report of the Science and Technology Committee" of the House of Commons in the UK in 2011, which was explicitly addressed to peer review in scientific publications, important initiatives have been established recently, such as the "Rigour and Openness in 21st Century Science" conferences held in Oxford in February 2012 and April 2013. These events included academics from various fields, top journal editors and relevant stakeholders and emphasized the need for reviewing peer review and understanding the potential of new publication systems and data sharing platforms to improve the rigour, efficiency and transparency of the process. The need for better standardization of the process has been suggested by important

initiatives, such as COPE (Committee on Publication Ethics) and the Neuroscience Peer Review Consortium, while new models of peer review beyond the traditional anonymous, ‘off-line’ model (e.g., open peer and/or post-peer review, cascading reviews between linked journals) have been explored by certain journals, such as e-Life, The BMC medical journals, the EMBO Journal, Frontiers and PeerJ.

This Action aims to fill this gap by exploring improvements of peer review systematically, through a trans-disciplinary, cross-methodological, cross-sectoral approach.

The objectives of this Action are:

- to analyse peer review in different scientific areas by integrating qualitative and quantitative research, incorporating advanced computational and experimental investigation and testing implications of different peer review models (e.g., open vs. anonymous, pre vs. post publication) and different scientific publishing systems (e.g., open vs. subscription-based publication systems);
- to explore new (material and reputational) reward structures, rules and measures to improve collaboration in all stages of the peer review process;
- to improve data sharing on peer review between stakeholders, by establishing standards and supporting testing initiatives;
- to define a joint research agenda that points to an evidence-based peer review reform with various stakeholders.

Integrating existing qualitative and quantitative research is key in understanding the interplay of behavioural and institutional factors and in discussing the concept of quality, rigour and excellence in various fields. As research in this field is relatively dispersed, a definition of the state-of-the-art is needed to identify existing knowledge, collect relevant case-studies, define the most important challenges and explore common foundations across disciplines and domains. Qualitative observation and quantitative analyses need also to be integrated with relatively new behavioural, experimental and simulation studies that investigated macro consequences of scientist behaviour, network effects, and group thinking in the peer review process.

Given the digitalization of knowledge, the innovative impact of the Internet and the proliferation of new ICT platforms for information sharing, a systematic analysis of the implications of different

models of peer review (e.g., single vs. double blind, anonymous vs. open, pre vs. post publication) is essential to explore better rules and measures to improve the quality and efficiency of the process. For instance, while certain journals, such as BMJ, e-Life or PeerJ, have explored open peer review and more active and extensive communication between all the figures involved, less has been done to evaluate the consequences of this for the quality of the process, the intrinsic motivations of all the figures involved and the optimality of the reviewers' selection (e.g., possible self-selection bias). The same is true for the understanding of the impact of new publication systems, such as the open post-publication peer review systems, on the capacity of science to maintain rigorous quality standards. By integrating qualitative analysis, quantitative indicators and simulation models, the quality of reviews could be examined more systematically and large-scale implications of peer review for the science system could be more precisely assessed.

While the challenge posed by the increasing complex and context-dependent nature of research technology embodied in each knowledge artefact must be tackled through standardization, data sharing and better expertise of reviewers, better knowledge on the current situation is instrumental to understand deficiencies in the reward structure of the process. This is also important to suggest new rules, incentives and measures that can improve current practices. Recent behavioural research indicated that peer review could be seen as a complex cooperation dilemma where the figures involved (i.e., journal editors, reviewers and submission authors) not only are influenced by knowledge and information asymmetry, but also respond to a complex and ambiguous reward structure. Recent findings suggest that the most dramatic deficiency of the actual system is the lack of consistent (reputational) rewards for reviewers, with the possible misalignment of interests between the figures involved. For instance, under weak incentives, reviewers might reduce the effort needed to form a competent judgment, exploit gate-keeping to penalize publication of submitted articles which do not have a positive effect on their expected citation payoffs, or being excessively conservative against innovative authors to defend their reputation with editors. Understanding the complex mechanisms of peer review and possible conflicts of interest and positions of the figures involved better is also key to exploring new incentives that could make the process more predictable, transparent and open to scrutiny. In this respect, understanding the complex interplay between social norms and incentives in peer review could help to explore sustainable positive and negative incentivization journal policies in terms of awards, editorial board turnover, anonymity vs. openness of reviewer comments, links between reviewers and published work.

This endeavour requires the establishment of an intensive collaboration with science stakeholders. This is essential to promote data mining and sharing on peer review, perform testing activities for new models and define a collaborative research agenda for further initiatives inspired by the Action.

Access to data on internal peer review processes, so far exceptional and sporadic, and closer collaboration between stakeholders and academics are needed to strengthen a ‘science of science’ approach to peer review. This also includes that idea of setting the standard for evidence-based policy initiatives. By using the new computational techniques of data mining, network mapping and qualitative text analysis on internal data, consistent measures of quality and rigour of the peer review process could be more systematically explored. Furthermore, this collaboration is key to identifying, selecting and performing some first testing initiatives for new rules, incentives and measures developed by the Action. This requires the establishment of new standards and platforms to properly share potentially sensitive data (e.g., name of scientists involved and personal communications during the review process) in order to consensually identify guidelines, disclaimers, agreement and data protocols. This could have positive effects in itself by creating conditions for further collaborative initiatives and incremental developments, but is fundamental to test new models of peer review in organized, well-controlled, experimental environments (e.g., at specific journals). Furthermore, this collaboration effort is intended to establish a research agenda that elaborates on the experience of this Action to develop more research-oriented proposals capable of institutionalizing this effort towards an evidence-based peer review reform.

This Action aims to respond to important needs of the **scientific community** and achieve a significant **societal impact**. First, it is widely acknowledged that the increasing exploitation of peer review by scholarly journals, book series, funding agencies and university structures (e.g., departments and institutes) requires the development of better rules and more efficient incentives in order to defend the long-term sustainability of peer review. Developing evidence-based guidelines and improving peer review systems could help to tackle the challenge of a long-term sustainability of rigorous science and provide indications for further initiatives addressed to the scientific publishing system and the management of scholarly publications.

Secondly, by increasing knowledge sharing across domains and promoting data sharing and mutual learning between stakeholders, this Action can strengthen the professionalization of peer review at stakeholders and increase their in-house capacity building. The involvement of science stakeholders is also instrumental in paving the way for more stable collaboration for research and management of peer review, which can develop through contamination and incremental developments. Thirdly, by providing tighter links and connections with various science stakeholders and creating an environment where cross-methodological and trans-disciplinary collaboration can take place, this Action can benefit Early Stage Researchers (ESRs) by providing opportunities for creative experiences and the development of advanced research and personal skills. By integrating qualitative and quantitative research, being exposed to a trans-disciplinary environment and collaborating with stakeholders, ESRs are expected to develop a more complexity-friendly approach to research and analysis. It is worth noting that similar experiences are not common inside the typically compartmentalized, discipline-based university structures. Finally, by collaborating with important science stakeholders operating worldwide, this Action can help increase the social recognition and credibility of science in Europe and answer to the proliferation of science scandals on the press and the social media, where peer review is often under the spotlight. It can also pave the way for further cross-sectoral research initiatives aimed at exploring science more systematically.

B. ADDED VALUE OF NETWORKING

This Action starts from the idea that peer review problems cannot be understood looking at individual fields or situations. The complex nature of peer review requires an effort to overcome the excessive self-reference of disciplines and approaches. Integrating qualitative and quantitative research is needed to combine knowledge on human behaviour, interaction and institutional contexts, as well as to understand their large-scale, long-term consequences for the science system. A dedicated networking effort is needed to solve problems of weak cross-fertilization between current peer review studies and the unequal institutional and geographical distribution of competences in academia and across stakeholders. Not only did qualitative and quantitative studies in this field institutionalise in different areas, institutes and countries; they also did not combine with recent innovative computational and experimental studies which used advanced computational, large-scale empirical techniques to understand peer review. On the other hand, peer

review studies did not give rise to coherent, dedicated institutional efforts (e.g., permanent dedicated research initiatives), so increasing the fragmentation and dispersion of knowledge. While independent, parallel explorations are positive for scientific progress, studies on peer review would benefit from better coordination and synergies.

Furthermore, although peer review is intrinsic to science at every level, field observation and empirical research shows that it is organised differently in various domains, also reflecting different levels of complexity in the evaluation standards of various disciplines. Qualitative studies testified to the heterogeneity of disciplinary traditions and the complex social process of definition of quality and excellence in various fields. This seems to occur not only to distant fields, such as the humanities and the so-called “hard sciences”, but also to brother disciplines, such as economics and finance, for example. By considering different specificities, it is possible to understand how certain common problems, such as evaluation bias, barriers against trans-disciplinary innovation, unethical behaviour, and misallocation of reputational credit might reflect certain institutional practices and be even (unintentionally) amplified by specific peer review practices. This is important to identify and share best practices but also to explore innovative peer review systems in different fields and situations.

Cross-sectoral collaboration between scientists and stakeholders is also needed to explore data sharing on peer review. Science stakeholders and scientists working on peer review have rarely collaborated side-by-side. This could provide a relevant source of data for researchers involved in this field, increase the research building, policy and management capacity for the stakeholders involved and explore data sharing standards that could make similar initiatives easier in the future by anyone else. Furthermore, cross-sectoral collaboration is essential to test different models of peer review, promote the implementation of innovative practices and ensure the long-term sustainability of peer review. Although links and collaboration with important stakeholders are already in place, without developing a common framework, a fruitful co-evolution of findings and practices cannot be achieved. Finally, given that initiatives in this field have been always fragmented and pursued mainly individually, networking is beneficial to reach a critical mass of (human and infrastructural) resources where positive effects could be amplified and trigger positive cascade effects (e.g., by involving other important stakeholders, such as funding agencies).

Furthermore, although certain science stakeholders might have developed high-quality research

capacity to manage and monitor peer review internally, tighter links between academic scientists and stakeholders can increase the quality of academic research in this field and strengthen the professionalization of peer review at stakeholders. Given the constant growth of scientific publishing, the proliferation of on-line journals and the increasing function that peer review covers at different levels (e.g., funding agencies, universities and the public sector in general), more stable interconnections between different stakeholders could increase the need for high-quality talented scholars, capable of managing advanced research techniques and formed on peer review topics.

Finally, establishing connections between experts in COST countries and International Partner Countries, especially from North America, where the importance of peer review is more recognised for historical and institutional reasons (e.g., higher prestige of funding agencies, American predominance of top journals in various fields and larger scale of the scientific community), can allow this Action to compare and integrate cultural and institutional specificities. Links are already established with other complementary EU projects, such as QLectives (Quality Collectives - FP7 - FET), which aims to explore new collaboration platforms for science on a large-scale, LiquidPub (LiquidPublications: Scientific Publications meet the Web FP7 – FET), which aims to promote better exploration of ICT to improve scientist efforts in peer review, ACUMEN – Academic Careers Understood through Management and Norms (FP7), which aims to empower researchers to respond to peer review and KNOWeSCAPE (COST Action TD1210), which aims to analyse and map scientific knowledge dynamics, including trust, reputation and peer evaluation. Links are reinforced through the participation of intended members of this Action to these projects. Existing collaborations are also in place with the “EAGER: Accelerating the Pace of Discovery by Changing the Peer Review Algorithm” project (NSF Science of Science Policy Grant 1042164, 2010/2013), the “Economics of Knowledge Contribution and Distribution” project (Alfred P. Sloan Foundation Grant (2011/2014) and with some projects on peer review granted by SSHRC (Social Sciences and Humanities Research Council) and by CIHR (Canadian Institutes of Health Research). These links are reinforced through the participation of intended members of this Action to these projects.

This Action aims to improve knowledge sharing and contamination between European and North-American research, leverage existing resources and create conditions for collaborative efforts at the international level.

C. MILESTONES AND DELIVERABLES: CONTENTS AND TIME FRAMES

The Objective 1 (O1) A.1 includes these tasks:

- (O1, Task1) analysing peer review by integrating qualitative and quantitative research and incorporating advanced computational and experimental investigation;
- (O1, Task2) testing implications of different peer review models (e.g., open vs. anonymous, pre vs. post publication) and different scientific publishing systems (e.g., open vs. subscription-based publication systems) for the rigour and quality of peer review;
- (O1, Task3) discussing present reward structures, rules and measures and exploring new solutions to improve collaboration in all stages of the peer review process;
- (O1, Task4) developing a coherent peer review framework (e.g., principles, guidelines, indicators and monitoring activities) for stakeholders that truly represents the complexity of research in various fields.

Milestones: the Action website (in function from Month 6) to share information and materials and favour coordination between partners; Short-Term Scientific Missions (STSMs) between involved partners to improve existing research and promote cross-methodological approaches; Working Group (WG) workshops that examine peer review and implications of differing models (using experimental and simulation models); Stakeholder outreach events to present Action's activity and expand collaboration. **Means:** cross-disciplinary, cross-methodological composition of Working Groups that reflects the unique approach of this Action; cross-domain references in joint publications; domain diversity between receiving and sending institutions participating in STSM. **Deliverables:** joint publications by networked partners in peer review journals (open access) (from Month 12); a collective book summarizing Action's results aimed at standardizing any future research in this field (finalized in Month 36); report on new models of peer review to be shared with stakeholders (finalized in Month 18).

The Objective 2 (O2) A.6 includes these tasks:

- (O2, Task1) establishing standards and appropriate ICT applications to treat, manage and share data on peer review between stakeholders;
- (O2, Task2) providing guidelines and protocols for data sharing;

- (O2, Task3) developing quality and efficiency indicators and monitoring measures to evaluate the potential impact of new models;
- (O2, Task4) selecting cases and performing testing activities on new models of peer review;
- (O2, Task5) promoting initiatives to institutionalize data sharing and testing between stakeholders.

Milestones: the Action website (in function from Month 6) to promote coordination between stakeholders; STSMs between involved partners to promote cross-sectoral approaches; WG workshops that examine standards and ICT solutions for data sharing; stakeholder outreach events to enlarge the network of involved stakeholders by presenting Action’s activity and research.

Means: cross-sectoral composition of Working Groups that intensifies knowledge and experience sharing between stakeholders; sectoral and domain diversity between receiving and sending institutions in STSM; participation of stakeholders to Action’s activities; geographical and institutional diversity of stakeholders involved. **Deliverables:** list of supporting stakeholders on the website (from Month 12, to be updated until Month 48); report on guidelines and protocols for data sharing on peer review (first draft on Month 12, finalized in Month 24); an evaluation report on testing initiatives (finalized in Month 36); joint publications by networked partners that show results of testing activities.

The Objective 3 (O3) B.11 includes these tasks:

- (O3, Task1) defining and monitoring challenges and prospects for an evidence-based evolution of peer review;
- (O3, Task2) leveraging existing resources and identifying new opportunities for collaboration and research;
- (O3, Task3) promoting training events on peer review;
- (O3, Task4) inspiring new research that follows the Action’s vision encouraging training events.

Milestones: an international Action conference summarizing the main results and inspiring new initiatives (last year of the Action); stakeholder outreach events to enlarge the network of involved stakeholders by presenting Action’s activity and research; training schools on peer review (including ethics, collaboration platforms, CV portfolios, editorship). **Means:** cross-sectoral composition of Working Groups that intensifies knowledge and experience sharing between

stakeholders; participation of stakeholders to Action’s activities; domain diversity of academics and geographical and institutional diversity of stakeholders involved in the conference.

Deliverables: joint publication (including collective book finalized in Month 48) to share collective results and build around a vision that stimulates further initiatives; preparation of a Horizon 2020 proposal (subject to specific calls) inspired by this Action (Month 48).

This is the timetable with a summary of milestones and deliverables.

Y	Milestones	Deliverables
1	1 st MC (Kick-off) meeting; WG meetings (establishing work and budget plans); Website in function (M6); WG Workshops; Outreach events; STSMs	STSM/WG reports; Annual Report; Joint Publications; First list of supporting stakeholders on the website (M12, continuously updated); First draft of data sharing guidelines and protocols for stakeholders (M12)
2	WG Workshops; STSMs; Outreach events; Annual Meeting (MC including WGs) joint with International Conference	STSM/WG reports; Annual Report; Joint Publications; Report on new models of peer review (M18); Data sharing protocols (M24)
3	WG Workshops; STSMs; Outreach events; Closing Annual Meeting (MC including WGs) joint with International Conference	STSM/WG reports; Annual + Report; Joint Publications; Testing initiatives (Evaluation report) (M36)
4	WG Workshops; STSMs; Outreach events; Demonstration events with stakeholders; Training events for ESRs; Closing Annual Meeting (MC including WGs) with Action international conference	STSMs/WG reports; Annual + Evaluation Report; Joint Publications (including collective book finalized); Complete list of supporting stakeholders on the website (M48); Research agenda, including preparation of a Horizon 2020 proposal (subject to specific calls) (M48)

D. ACTION STRUCTURE AND PARTICIPATION – WORKING GROUPS, MANAGEMENT, INTERNAL PROCEDURES

In order to achieve the scientific objectives, the Action will be divided into three Working Groups (WGs). Although the WGs will have one main objective and some sub-objectives, as further specified, each one will collaborate in the tasks illustrated in Section C. Collaboration between groups will be strongly encouraged to avoid any compartmentalization and favour knowledge sharing and coordination. An active participation of stakeholders in each WG will be encouraged.

WG 1: Theory, analysis and models of peer review

The main objective of this group will be to analyse peer review in various fields (Objective 1, A.1). Specific objectives will be: i) defining the state-of-the-art of peer review by integrating qualitative and quantitative research and incorporating recent experimental and computational studies; ii) testing implications of different peer review models and publishing systems for the quality and efficiency of the process by using advanced simulation, data mining and scenario analysis techniques; iii) exploring rules and incentives to improve collaboration in the peer review process for all figured involved; iv) developing a coherent peer review framework (e.g., principles, guidelines, indicators and monitoring activities) for stakeholders that truly represents the complexity of research in various fields.

WG 2: Data sharing and testing

The main objective of this group will be to establish standards to promote and manage data sharing among stakeholders and testing initiatives (Objective 2, A.6). Specific objectives will be: i) establishing standards and ICT applications to promote data sharing on peer review by treating potentially sensitive stakeholder data (e.g., guidelines, disclaimers, agreements and data protocols); ii) developing quality and efficiency indicators and monitoring measures to evaluate the impact of new models; iii) selecting cases and performing testing activities on new models of peer review (e.g., specific journals, conferences or agencies); iv) promoting initiatives to institutionalize data sharing between stakeholders.

WG 3: Research and Implementation Agenda

The main objective of this group will be to define a joint research agenda and inspire implementation activities (Objective 3, B.11). Specific objectives will be: i) leveraging existing resources and identifying new opportunities for research inspired by the Action; ii) defining and promoting an evidence-based vision for future research on peer review; iii) promoting training activities on peer review addressed to ESRs iv) preparing proposals for funding research inspired by this Action;

The Action will be coordinated by a Management Committee (MC). A Steering Group (StG) will be elected at the 1st MC Meeting (Kick-off), including the Action Chair, Vice-Chair and the WGs leaders, acting as scientific coordinators. The StG will be supported by two Specific Tasks Coordinators: a Dissemination Coordinator (who will be responsible for the website and monitor publication strategy) and an Outreach Coordinator (who will monitor the outreach, including stakeholder involvement, and implementation policy). The StG will propose the MC a Gender mainstreaming policy (monitored by the Vice-Chair) and a policy for ESRs (monitored together with the STSM policy by the Chair). Functions of Scientific Coordinators of WGs and Specific Task Coordinators can be combined. The Annual Workshops (including the annual MC meetings) will allow experience to be shared, assess key-advances and foster scientific direction. An international conference will take place in the last period of this Action. Links with international experts from International Partner Countries in the USA, Canada, Brazil, as well as from Near-Neighbour Countries (e.g. Ukraine) are in place.

The Steering Group (supported by Specific Tasks Coordinators) will manage the day-to-day operations of the Action, monitor milestones and prepare documents for the annual MC meetings, including a financial plan to adequately share the resources within the Action budget. The Annual MC meetings will take place at workshops or conferences organised by the Action. The MC will promote collaboration between WGs also encouraging regular virtual meetings between WG leaders (at least two per year). It will also ensure cross-fertilisation and stimulate cooperation with related COST Actions and networks. An outreach policy will be developed by the StG/MC.

Each WG will have at least one Scientific Coordinator, who will report to the MC and support the daily monitoring and annual reporting of the Action. If appropriate, a Deputy Scientific Coordinator will be appointed preferably from a different country involved in the Action. WGs

will develop their plans to accomplish their assigned tasks and will present them to the MC. They will develop synergy with other WGs through co-organisation of meetings, co-preparation of future proposals, mutual organisation of workshops and regular virtual meetings between coordinators (at least two per year). The WG scientific coordinators will inform and consult the corresponding Coordinators, the Chair and Vice-Chair, on gender balance matters, involvement of ESRs, STSM policy, dissemination and outreach activities.

This Action will respect an appropriate gender balance in all its activities and the MC will place this as a standard item on all its MC agendas. The Action will also be committed to considerably involve early-stage researchers. This item will also be placed as a standard item on all MC agendas. The initially implemented policies will be reviewed annually and if necessary, will be adapted. As regards gender balance policy, the Action has a quota corresponding to the share of female researchers in the MC as default. This quota includes coordinating positions in the Action, participation in workshops and in STSMs. Deviations from this will need to be justified. This will be monitored by the Vice-Chair. Affirmative action will be taken to enable ESRs of both genders to attend networking activities of the Action. As STSMs are important for ESR capacity building, this Action will determine that 50% of STSMs will be dedicated to ESRs. STSMs will be addressed to non-ESRs only in case of important trans-disciplinary collaboration. It will be also established that 30% of the STSMs will be related to contacts with stakeholders. The STSM policy of the Action will also aim to balance disciplines and countries, and will be monitored by the Chair.