ACUMEN

academic careers understood through measurement and norms

FP7 Grant Agreement	266632

Deliverable No and Title	**1.3. New evaluation methods**
Dissemination Level	PU (public)
Work Package	1
Version	2
Release Date	15.10.2012
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Project Website	http://research-acumen.eu/

European Commission
7th Framework Programme
SP4 - Capacities
Science in Society 2010
Grant Agreement: 266632

EUROPEAN COMMISSION

SEVENTH FRAMEWORK PROGRAMME

1. Literature Survey

The analysis has been carried out on the basis of Peer Review related documentary analysis (Thomson Reuters, Union Library Catalogues, Google Scholar, and reports of selected research funding organisations).
The outcome of this task is an open dataset of Peer Review related documents (archimedes.ee/acumen), and a review of Peer Review related documents.

Data and methods

The documentary analysis was conducted on the basis of published papers and monographs on the process of Peer Reviewing (available from Thomson Reuters, Union Library Catalogues, Google Scholar), and the survey reports of the research funding organisations. Searches were made by keyword “Peer Review”, after which manual cleaning was performed. The main purpose was to select documents which contain materials about research on Peer Review. In total 380 documents were selected. The overview is divided into two Sections and six paragraphs: 1) Activities at the European level: a) Peer Review at the European Union level (Expert group Reports, ERA-NET schemes; European Research Council); b) European Science Foundation initiatives; c) National Peer Review studies. 2) Topics with greater interest: a) Pros and cons of Peer Review Process versus Metrics; b) Peer Review practices; c) Peer Review biases.

Main findings

- The general trend is that, although there is common agreement, that assessment of excellence in research should be regarded as the central pillar in the set of evaluation criteria, in the 21th century has also increased the importance of non-scientific criteria. It concerns both projects, as well as the choice of reviewers - quality evaluations come from diverse panels of experts, which might include a mixture of backgrounds and, if relevant, different straightforward approaches and they will usually have to be tailored to the type of call. There is need to explain peer review needs to be seen within this *broader social interest* in the reliability and quality of research, rather than identified with the preoccupations of particular scientific groups that their messages are not getting through.
- The idea of drawing up a common database of "certified" experts, which was very popular at the beginning of 21th century, over time, started to be treated carefully. In fact what might appear initially simple and attractive to implement, raises a number of problems (how and by whom the certification is made; how discipline boundaries are defined; how possible reputational consequences for experts who are deemed unsuitable for the database should be dealt with).
- The role of reviewers in peer review process has received greater attention. This is because of the limited availability of highly qualified experts, and multiple demands from different agencies.
- A major discussion has been, what methods to use in carrying out of Peer Review. General agreement is that all methods have their potential and their limitations. It is often fruitful to use a mixed-method approach.
- Several novel approaches for research evaluation (bidding as an indicator of importance, peerevaluation.org vs. u-count, use of community opinions, incentives to participate, the role of the internet) have been proposed. The processes for the evaluation of research outputs and of researchers are also changing. The growth of various tools for research evaluation, including open source and those operating with open API/protocols is predicted in the future.

2. Survey on Peer Review Practices

The questionnaire survey was conducted with the aim to receive more insight into researchers’ attitudes towards the ways in which quality, success, excellence and impact of scientific production are measured and evaluated, and get suggestions about how the current PRev system should be improved or modified. In the questionnaire, the focus of interest was on researchers’ views and experience as either a project applicant or reviewer.

Data and methods

A structured web based (LimeSurvey) questionnaire was prepared for the survey. The survey was divided into four blocks:

1. General information (fields of science and technology, country of affiliation, citizenship, gender, the profile as researcher);

1.2. Experience in the PRev process (as applicant or reviewer);

1.3. Respondents' experience as an applicant (how many applications they have made, how successful on an average have they been, being informed of the reasons for the rejection, the reasons for the rejection);

1.4. Respondents' experience as a reviewer (how many reviews they have made, have they refused review offers, what were the main reasons for refusal, have respondents been informed about the end results of the application reviewed by them, would this feedback be necessary);

2. S&T indicators (the most appropriate indicators in assessing the work of researchers, should the various indicators be weighed differently, is there a need to have different weightings for the various indicators in different subject areas, is there a need to have various indicators or different weighing for the various indicators at different career stages);
3. Criticism of PRev (effects of different bias on the assessment of the applications, the most important issues to consider for optimising fairness and objectivity in the evaluation process, what are the most essential criteria for a good reviewer, to what extent information about reviewers should be available to the applicants);
4. The future of the peer review system.

The survey was open for two months (November – December 2011). The information and call to participate in the survey was sent out via different communication channels. In total, 2114 respondents answered. Data processing was carried out in SPSS.

Results were presented in five paragraphs: 1) General information (fields of science and technology, country of affiliation, citizenship, gender, the profile as researcher); 2) Experience in the PRev process (as applicant or reviewer); 3) SjaT indicators; 4) Criticism of Peer Review; 5) The future of the peer review system.

Main findings:

- Respondents' affiliation and nationality geography illustrates the ongoing trends in the mobility of researchers in Europe and in the world. While respondents belong by nationality to 79 countries, their places of affiliation are in 66 countries.
- The survey reflects the situation prevalent in Europe – the proportion of women decreases with their career progression.
- The largest numbers of respondents belong to natural sciences and that may influence the results, however the overall proportions of fields match the corresponding figures of the European Union.
- The success rate of the respondents' applications has been extremely high: 67.4% of national applications, 60.2% of international applications and 70.1% of supranational applications have a success rate higher than 50%.
- Some differences can be observed between the various academic positions, full professors are apparently with a higher success rate in obtaining projects on the national level, they are, however, with the lowest success rate in obtaining personal grants on the supranational level.
- The main reasons for rejection are lack of funding (61.4%), and remaining under the evaluation threshold (49%).
- Reasons why the respondents agreed to be reviewers were mainly linked to research ethics – obligation towards the field, intention to ensure the quality of the field, and desire to help fellow researchers. Also self-improvement was important – to receive an overview of own field.

- While the majority of postdoctoral research fellows (67.3%) and lecturers and assistant professors (60.6%) had never refused to be a reviewer, the majority of associated professors (57.6%) and full professors (83.6%) had refused reviewing.
- The most common reasons to refuse to review were the lack of time – 84% of all respondents stated that this was often or even very often a problem, the second by importance was the feeling that they lacked the relevant expertise (60.8%). Here postdoctoral research fellows were the most confident, only 45.2% of them considered it a frequent reason (for 60.9% of full professors it was a problem).
- It seems that in Peer Review practice it is not common to inform reviewers about the final results of applications reviewed by them. About 34% of reviewers had never been informed about results, and 23% of them had been informed very rarely. The majority (75.3%) of respondents did not consider it necessary to receive feedback about the final results.
- The most favoured indicator was high ranked publications (4.5), and this is the only one which was accepted by researchers from all fields.
- Other favoured indicators were citations (3.9), research collaborations and partnership (3.8), reputation and esteem – position as journal editor, membership of editorial boards and scientific committees and membership in learned academies (3.6), and number of prestigious national and international awards and prizes (3.6).
- The overall position was that various indicators should be weighted differently (agreed by 66.4%) and that there is a need to have different weightings for the various indicators in different subject areas (agreed by 68.5%) as well as a need to have various indicators or different weighting for the various indicators at different career stages (agreed by 69.1%).
- Indicators have to be fit-for-purpose, appropriate and verifiable.
- Among eleven different biases which may occur in the PRev process, the most urgent concern was related to the so-called Matthew effect – "to those who have, more shall be given"(rating 3.8), institutional bonus (3.6), friendship bonus (3.6), and entrenched academic traditionalism (3.5). There was an almost complete consensus among the respondents, both in terms of gender, field, as well as the academic position.
- The majority of the proposals to improve the Peer Review system were related to reviewers. The overwhelming view was that the people who agree to participate in the PR process should be recognized. A good reviewer has relevant disciplinary competence and academic excellence, the comments are comprehensive and useful, the review is written in appropriate language and it is submitted in time, previous peer review experience is also needed.
- The majority of respondents wanted to have a reviewer's written evaluation available to the applicant, excluding reviewer's name (54.6%), and considered that an applicant should have the possibility to read and respond to the reviewer's comment before the final decision (49.9%).