

Reputation mechanisms and platforms: views of an expert panel on their future use, role and influence

Drivers for Science 2.0: new reputation and funding mechanisms
workshop. Held in Seville under auspices of JRC-IPTS, Oct 29-30 2014

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1.0 Background

In order to better understand the transformative power of technologies in science and how policies can support this transformation, the European Commission's Joint Research Centre - Institute for Prospective Technological Studies (IPTS), funded an exploratory study on Science 2.0 over the course of 2014. The study was tasked with gathering evidence of emerging practices focusing on "Emerging reputation system for scholars" and "Alternative mechanism for scientific research". A key event in the study was a workshop where about twenty-five people - experts in the fields of alternative funding mechanisms and emerging reputational mechanisms and IPTS personnel - met under the auspices of JRC-IPTS in Seville for two days to discuss the findings and policy implications of the two projects arising from the same programme. This report focuses on the latter project.

In addition to validating the findings of the projects, the workshop added greatly to the understanding of the relevant issues by bringing in new data and experiences, which enhanced the data obtained by interview, focus group and survey. The workshop was also used to seek consensus, create scenarios, generate forecasts and plan ahead.

2.0 Context

New terms like "Science 2.0", "Digital science" and "Open science" have emerged to describe trends, such as open access to scientific knowledge, citizen science and open peer evaluation systems, to mention but a few. These developments, which typically started as grass-root initiatives, have little by little become embedded in more mainstream scientific research practices potentially bringing about a change in how science and research systems function in the future. It was in this context that the Emerging Reputation study was conducted. The study was also minded by a recent public consultation organised by the European Commission¹, respondents advised the European Commission to be patient with the development of policy initiatives to govern research in the digital era in general. Most responses acknowledged, for example, that there is a need for changes in researcher reward systems and peer review – none, however, elaborated fully on how this should be undertaken. Some areas, on the other hand were, "considered mature enough for policy intervention. These include issues such as open access, open data, research infrastructure and changes to copyright rules to permit text and data mining"².

The study also needed to take account of the fact that, in today's digital environment, the scientific enterprise is being opened up to a wider range of participants whilst concurrently introducing a wider range of media into scientific processes and outputs, especially social

¹<http://www.consultation-science20.eu/>

²Research Professional, Oct 9 2014:

<https://www.researchprofessional.com/0/rr/news/europe/regulation/2014/10/Take-Science-2.0-slowly--Commission-advised.html>

media³. As Weller⁴ points out, if traditionally we have tended to think of scholars as being academics, usually employed by universities, the democratisation of the online space opens up scholarship to a much wider constituency. Now the creation, dissemination and transferring of knowledge may involve 'actors' from the entire range of the professional-amateur-citizen spectrum. Thus, although these days a scholar is still often an institutional academic scholar, it is not invariably so; he/she may very well be a free-lance scientist, who has no institutional affiliation, an amateur expert, who has no traditional academic background, an informed member of the general public contributing to a public participation in scientific research (PPSR) project, or even an innovators who have gained reputation in the field of science by winning one of the inducement prizes for societal challenges. Of course, this all means that conventional indicators of high-impact publications and citation mechanisms no longer support the wide range of scholarly activities conducted by these actors to properly evaluate the impact of their far researching scientific work and its impact on the society. As a consequence, the study looked at novel social networking services and tools that are used by scholars to support and enhance their work, but also eventually to build and maintain their scholarly reputation (e.g. ResearchGate, Academia.edu and Kudos).

3.0 Deliberations, findings and outcomes

3.1 New scholarly activity model with a reputational element

The project was commissioned to come up with a holistic profile of scholarly activities that did not only emphasize scholarly excellence through high-impact publication and citations, but also focused on a plethora of other scholarly tasks and their reputation building aspects, such as teaching, peer-reviewing, mentoring, communication and outreach activities. This profile also needed to accommodate the "new profiles" of scholars with non-traditional academic backgrounds (e.g. free-lance scientists), or even "new actors" in the field of science (e.g. citizen scientists). Starting with the widely accepted activity building blocks of the model constructed by Boyer (1990)⁵ and incorporating the updates to the model made by Garnett and Ecclesfield (2011)⁶ the results of a major literature review exercise was added to the mix to create a new model with a reputational aspect added. This 'new model' was then tested in the field via focus groups, interviews and surveys and then refined and the result presented to the workshop for review, feedback and refinement (see Appendix 1 for the model).

³ Goodfellow, R. (2013). The literacies of digital scholarship—truth and use values. In: Goodfellow, R. & Lea, M. Eds., *Literacy in the Digital University: Critical Perspectives on Learning, Scholarship and Technology*, 67-78

⁴ Weller, M. (2011). The nature of scholarship. In: *The Digital Scholar: How technology is transforming academic practice*. A&C Black. Available at:

http://www.bloomsburyacademic.com/view/DigitalScholar_9781849666275/chapter-ba-9781849666275-chapter-005.xml

⁵ Boyer, E. L. (1990). *Scholarship Reconsidered: Priorities of the Professoriate*. A Special Report of the Carnegie Foundation for the Advancement of Teaching. San Francisco, California: Jossey-Bass.

⁶ Garnett, F., and Ecclesfield, N. (2011). Towards a framework for co-creating open scholarship. *Research in Learning Technology*, 19. ALT-C 2011 Conference Proceedings

It turned out that few participants had heard of the Boyer model and some felt that the basic activity template needed revising and updating in order to provide a more 'bottom-up' feeling. There were also concerns that the categories Boyer identified and the descriptions used would not be fully acknowledged or recognised on the academic shop floor, because the vocabulary was not always appropriate for these digital, web 2.0 times. It was also felt that the activities could be weighted because clearly all the activities were not of equal weight, for instance, co-creation is a tiny area when compared to researching and teaching, but was a category in its own right. And the main conclusions of the project's fieldwork element were that nothing counts for reputation as much as research, so, if there was going to be any weighting research would be highly weighted.

Two activities that were thought to be missing were: a) obtaining research grants, especially blue-chip funded ones (e.g. in UK terms from the main funding councils, such as the ESRC); b) management. Of course, management is not strictly a scholarly activity but it is something that academics do quite a lot of. However, the findings of the literature review indicated, however, that management is rather marginal where reputation building/maintaining is concerned. In fact, it is only seen as important for establishing local, as opposed to international standing. It was also felt that many of the numerous activities in the research category were involved with dissemination, which some participants regarded to be rather one-dimensional, and that more emphasis should be placed on the sharing element.

3.2 Alternative funding and emerging reputational mechanisms

The most obvious crossover between the two topics/projects is a negative one and this is that a big element in obtaining reputation is by attracting blue-chip funds and projects that are funded by alternative mechanisms (crowdsourcing being a major one) would not be seen as blue-chip or, for that matter, deliver the kind of money that big projects need and by which big reputations are made. Alternative funding tends to be generally local in orientation and reach, whereas reputation tends to be judged internationally. More positively, alternative funding sources do appear to provide early career researchers with a reputational leg-up, rather like emerging reputational systems. In this respect they go hand and glove. Alternative funding projects also can provide a research foothold for the new research actors, which Science 2.0 is hoping to empower.

3.3 Reputational 'personas'

Scholars have many reputational sides/faces to them – they may be widely read, highly productive and highly cited authors, keynote speakers of note, have many followers, be on prestigious editorial boards etc. and play to these things. The presence of a multiplicity of reputational mechanisms and platforms simply reflects this.

3.4 Incentives for using alternative reputational systems

There are clearly huge incentives to adhering and playing to the existing research-focused reputational system and its practices so, what are the incentives for utilising the alternative systems? On the surface there appear to be none, indeed, there actually might be reputational dangers in using the alternative systems; for instance, scholars might not obtain promotion or tenure as a result of indulging in the social media to the detriment of getting articles accepted by high impact factor journals. However, there are glimpses of light. Firstly, young/novice researchers and new actors need to use everything they can to kick start their careers. In order to obtain publicity for their work they will use every tool available and we can see this happening on such reputational forums as ResearchGate. Secondly, as the scholarly world expands and becomes more public competition inevitably increases. With reputational bars being raised even experienced researchers have to use every tool they can to enhance their reputation. Thirdly, it is only logical that by making research work more accessible and promoting it through the full range of scholarly communications, including the social media, that can lead to increases in traditional reputation measures as well. Fourthly, a few universities are now beginning to dip their toes in the emerging mechanism waters. Thus, at the University of Bergen policy makers are considering how social media activity can be incorporated in reputational judgements. Other universities will surely follow.

3.5 Trust in reputational systems

There are concerns that reputational platforms could become too powerful, as they, arguably, are in the traditional citation-centric system because of the widespread use of metrics in scholarly policy and decision making. Thus, the algorithms on which mechanisms are based should be open and transparent and this is patently not the case, for example, when it comes to ResearchGate. Thus their RG Score, which is said to be 'a new way to measure scientific reputation', takes research and turns it into a source of reputation. It is said that the RG Score is calculated on the publications in the profile and how other researchers interact with your content, but no details are provided as to weighting etc. Reputational systems, like ResearchGate, would argue that this is necessary otherwise their systems will be gamed and hence devalued. Nevertheless, it was widely felt that there needs to be a quality assessment of reputational systems if scholarly authorities and institutions are going to employ them seriously. And especially so if the EC was going to run with them.

3.6 Future scenarios

Three scenarios were constructed, presented, discussed and voted upon by workshop participants:

1. **The rosy scenario:** that is the new drivers will make science much better, more effective, efficient and more innovative. This is built on the premise that European science is much too narrow and introspective and it needs shaking up with lots of new actors and digital

ways of doing things. There is a need to break the ties that bind and everything will be better as a consequence. Only by doing this will Europe be able to compete with the US.

2. **Business as usual scenario:** this envisages that the new digital drivers will spark some changes in the way that science is constructed and the impact it has, but it will only change the existing system marginally and incrementally. This was dubbed the 'iceberg' model, with most of the reputational system lying below water and untouched, but bits of the iceberg above water are dropping off as the heat of Science 2.0 is felt.
3. **The Doomsday scenario:** the new drivers will have no impact whatsoever, except, maybe, negatively. The premise being that European science will lose its way, straying from the chosen path, which will lead to science being devalued and nobody trusting it. A lack of quality control and credibility will result as a consequence of breaking away from conventional practices and involving the new actors, with EU science looking ever more like 'hippy' science. The popularisation, which will be a result of pursuing open science, will be seen as leading to a dumbing down. Good scientists will leave Europe and the EU loses out to global competitors.

The general consensus of the workshop was that Scenario 2 (Business as usual) was the most likely to come about. It was thought that while there were very big obstacles to change, notably it is a slow, cumbersome, massive, global system that has to be changed, but a combination of factors: a) the sheer unevenness and unfairness of the existing system; b) digital inevitability; c) increasing pressures for change from the consumer (student/parent/employer) lobby; d) policy directives from the EC, would all lead to slow change in the medium term. So what are the drag anchors to change?

- a) **Existing system too old to change quickly.** European academic institutions are generally very old and traditional and Europe must have the lion's share of the world's oldest universities. That does not auger well for change.
- b) **A very conservative system.** There is an innate conservativeness about scholarly institutions, which have a strong preference standard systems of measurement, warts and all. By adopting new measures and criteria they might end up funding 'stupid' projects, losing control etc.
- c) **Too much investment in the existing system.** There is too much investment in the existing system and with millions of scholars from emerging/developing countries (China, for instance) joining it in waves who is going to be brave enough to say, actually, don't join the system it is broke? Scholars and their employers are only just waking up to the H-index and their like, so they are unlikely to want to change tack. A counter argument could be put, which is that citation measurements are softening up scholars for wider employment of metrics.

- d) **The ‘Matthew’ effect.** Those doing well by the existing reputational system (the professors, editors etc.) are unlikely to relinquish their privileged positions. They are going to be major barriers to change because under the existing system eminent scientists get disproportionately great credit for their contributions while relatively unknown scientists tend to get disproportionately little credit for comparable contributions. This is known as the Matthew effect⁷.
- e) **National diversity** within the EU – and there are 28 countries -will slow things down because not every country is on the same page or has the same statutes and employment conditions.
- f) **Questionable new metrics.** Research might be more easily manipulated by ‘rich’ people as it is easier to buy metrics, such as, usage tweets and likes. A science reputation based upon altmetrics might destroy faith in the scientific endeavour or the authority of scientific research.
- g) **The ‘Balkanisation’ of reputation.** This is a big fear. Scholars would pick the reputational system, which shows them up best. This is already happening with citation-based metrics of course, but there is much more scope here as the range of activities under the microscope widens considerably.
- h) **The international dimension.** Reputation in academe, certainly in the case of research, is showcased and judged on the international stage, albeit, currently, on an English language one. There could be a real risk that EU scholars and institutions would be disadvantaged if they did not abide by the international norms.

4.0 Way forward for EC and policy implications

The view of the workshop and the EC as it turns out (there were EC representatives at the workshop) is that the best way forward is via small scale ‘seeding’ and ‘pebble in the pond’ experiments to test the waters. It was felt that the field was so young and emerging that it should be given the freedom to develop before (EC) policies were set in stone. We are, after all, in an experimental phase: winners will emerge later. So JRC-IPTS should facilitate rather than prescribe. However, there is a need to tip things in the direction that Science 2.0 is travelling. This is said to be EC way and quite unlike that of the USA where it, is alleged, they are gung-ho for things like this and just do it. But given the fact that the EC has to carry 28 governments with it this is perhaps understandable on the part of the EC. There is another reason for proceeding with caution and that is there is a need to ensure balance and to take into account traditional stakeholders, such as publishers, who are largely associated with the existing reputational system.

⁷ Merton, R. K. (1968). The Matthew effect in science. *Science*, 159(3810), 56-63.

It was also thought that any programme of research needs to take account of national diversity and that a hybrid system of reputational mechanisms was preferred to a one-size-fits-all approach. There were thought to be opportunities for fast-forwarding things. Given that the US are generally ahead of the game because they are more able to innovate, so one option is to investigate what was happening there and to see whether it can be transferred to Europe.

Appendix 1: Scholarly activities in the digital age with reputation conferring potential

The scholarship of research

- Obtaining funding
- Planning a research project
- Building upon previous knowledge
- Releasing data to the scholarly community
- Releasing methodologies, research tools and protocols to the scholarly community
- Disseminating research results formally via traditional scholarly channels
- Disseminating research results informally via active participation in conferences
- Disseminating research results informally via social media
- Peer reviewing
- Monitoring one's impact

The scholarship of integration

- Identifying a topic for a comprehensive literature review/textbook
- Identifying a researchable multiple-faceted topic
- Planning a comprehensive literature review/textbook project
- Planning an integrative research project
- Producing a literature review/textbook via traditional strategies
- Producing a literature review/textbook via open strategies
- Producing an integrative research output
- Producing an integrative, often multi- or inter-disciplinary research output collaboratively
- Producing Open Education Resources (OER)

The scholarship of application

- Identifying a researchable topic focussing on practical problems experienced by public/practitioners
- Identifying a researchable topic focussing on practical problems experienced in organisational or industrial settings
- Planning a research project focussing on practical problems experienced by public/practitioners
- Producing an application oriented research output
- Producing a community-interest driven, application oriented research output
- Producing an application oriented research output via a public participation in scientific research) project
- Participating in the commercialisation of one's inventions/discoveries (for example, by filing patents)
- Serving industry or government as an external consultant
- Serving one's professional/disciplinary community
- Popularising scientific knowledge

The scholarship of teaching

- Designing a course/learning programme

- Producing and delivering a teacher focussed, face-to-face, institution-based, often access controlled course/ learning programme
- Co-producing and co-teaching a teacher focussed, face-to-face, institution-based, often access controlled course/learning programme
- Producing and delivering a teacher focussed, online, institution-based, either access controlled or freely accessible course/ learning programme
- Co-producing and co-teaching a teacher focussed, online, institution-based, either access controlled or freely accessible course/ learning programme
- Conducting a social networks based, participatory MOOC (massive open online course)
- Pursuing the Open-Notebook Science model in the classroom
- Tutoring/mentoring students on an individual basis
- Advancing learning theory through classroom research

The scholarship of co-creation

- Participating as a consultant in a PPSR (public participation in scientific research) project
- Leading a Contributory PPSR (public participation in scientific research) project
- Leading a Collaborative PPSR (public participation in scientific research) project
- Collaborating in a Co-Created PPSR (public participation in scientific research) project
- Conducting a PPSR (public participation in scientific research) project in classroom or web based course/learning programme