

On the Sociology of Science 2.0

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The difference between technology and slavery is that slaves are fully aware that they are not free

—Nassim Nicholas Taleb

Abstract While the previous chapters of this book reveal some technical principles of Science 2.0, here we look at the psychological and sociological motives of researchers using these novel tools. In this chapter we will see how and why the main drivers of scientists in the Internet are different from usual “offline” scientists. We consider here an Internet-geek (driven by the psychological principles described below), assuming that he/she is also a scientist (the potential audience of Science 2.0). So how would such a person behave?

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Let us first outline the classical understanding of the usual “offline” scientist. About 70 years ago Merton (1942) summarized some of the basic sociological principles that drive scientists, the Mertonian norms of science, often referred to by the acronym “CUDOS”. These include *communalism*—the common ownership of scientific discoveries, according to which scientists give up intellectual property in exchange for recognition and esteem; *universalism*—according to which claims to truth are evaluated in terms of universal or impersonal criteria, and not on the basis of race, class, gender, religion, or nationality; *disinterestedness*—according to which scientists are rewarded for acting in ways that outwardly appear to be selfless; *organized skepticism*—all ideas must be tested and are subject to rigorous, structured community scrutiny.

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In addition to the Mertonian principles, western scientists are also governed by the economic principles outlined in the “Republic of Science” by Polanyi (1962) about half a century ago. These economic principles have become extremely important now, when the era of “scientific Eldorado” has finished and scientists have to make efforts just to remain in science. Economic pressure dictates that scientists are rewarded for being productive, competitive, and successful. Scientists need to publish as much as possible, as often as possible, and do their best to advertise their work through all types of media so as to attract citations, funding, and recognition. Sociologically, all of the forces mentioned above, whether they are egoistic or altruistic, are job-centric. This is true for conventional “offline” scientists. Is it still true for Science 2.0?

To address this question, the author has conducted a survey online. 50 most active users of one of the leading scientific online communities, professional life scientists with Ph.D. degree, were asked the following question: “What are you doing here?” The respondents were given several choices and were asked to choose *only one* answer, most closely resembling their feelings. Below is a summary of received answers:

I am having here a nice time and it is useful for my work (~50/50)	40 %
I am having here a nice time, relaxing after work	19 %
I am polishing my scientific arguments in online discussions	12 %
I am addicted to Internet. I would like to leave this resource but can not	10 %
I am getting here some useful information for my work	5 %
I am popularizing my scientific ideas/publications	5 %
I am advertising my products/services	5 %
I am helping other members, and I like it	2 %
I am maintaining contacts with my colleagues here	2 %
I am here mainly to exchange PDF articles free of charge	0 %

This survey presents quite surprising results for the advocates of Science 2.0. Firstly, we see that the overstated need for free access to scientific publications is not the driving force at all (none of the 50 respondents was using social tools to exchange PDFs of articles behind subscriptions). Secondly, the “facebook-type” activity of maintaining contacts with “friends” is negligible (just 2 % of respondents use Science 2.0 tools to maintain contacts with colleagues). As expected, few people use social media to sell/buy/advertise something scientific (5 % for each of these categories). Now we come to the largest shares. 10 % of scientists openly say in this anonymous survey that they are simply addicted to the Internet (in the negative sense). 12 % use scientific tools online to polish their arguments (probably before publication). 19 % enjoy Science 2.0 tools just for fun. Finally, 40 % of scientists combine fun and usefulness for work. (Compare with just 5 % of scientists who answered that they are using Science 2.0 tools primarily to get something useful to work). Taken together, these data explain why scientific

social media has failed to attract the majority of usual “offline” scientists. Just the basic motivation behind most Science 2.0 systems offering services other than the top three lines of this survey is wrong. Nothing is wrong with scientists. Something is wrong with Science 2.0, which needs to be more flexible. Acknowledging the huge progress reached by Science 2.0, we have to admit that it still requires large changes, and the next wave of science, Science 3.0, is yet to come (Teif 2013, 2009).

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