

Informal Afterthoughts

A group of international and interdisciplinary scholars, scientists, policymakers, government, industry, and non-profit organizations and NGO representatives came together over a couple of days in Tempe, Arizona to discuss priorities in developing social science research agendas in relation to synthetic biology.

Several points gained particular traction over the course of the workshop. These include some quite foundational definitional concerns. For the purposes of this meeting and this discussion, I take social science to implicitly include the humanities and philosophy. But the more important question raised was what SynBio is and, equally, what it is not. Is it something new, or merely an extension of existing technologies and approaches? Why do some groups make a strategic decision to not call their research or projects synthetic biology, preferring, for example, “extreme genetic modification”? This raises an underlying set of questions oriented around that of, “what does it mean to call something (a technique, a research program, a project) synthetic biology?”

In part, how we define synthetic biology depends on how we constitute “the natural.” This, in turn, is likely to affect both the rhetorical shaping of SynBio discussions as well as how it is perceived by (and indeed, marketed to) various publics.

The UK-based scholars, in particular, voiced an ongoing research stress for social scientists who are so often treated as appendages or afterthoughts to SynBio projects. How can we ensure that social scientists are not relegated to the role of handmaidens to scientific projects. Embeddedness is required for research access, but this risks to become, as one participant quipped, “in-bed-edness”. This concern points to the strongly expressed need for independent sources of funding for social science research in SynBio so that it can maintain a critical distance, rather than acting as some kind of authorizing mechanism. We would do well to attend more closely to developing methods and funding structures for balancing social science research needs for both integration and independence.

Participants were, in one sense, impressively international, including representatives from the US, Canada, UK, France, Germany, the Netherlands, and Norway. However, I would have liked to have seen a somewhat greater scope of international inclusion. With stem cell research, for instance, we have seen the relatively rapid development of laboratories and programs in East Asia (and, of course, elsewhere). As SynBio has potentially global stakes, including representatives from countries that are already developing research programs in (e.g.) China, Taiwan, South Korea, and Japan could have added significantly to the workshop. Many scholars and scientists in such countries are eager to participate in the international development of research questions and guidelines and would likely welcome early inclusion. If global governance is an issue in SynBio – and I suggest that is – then perhaps it is better to bring in a more broadly international set of collaborators early on. In addition, something like the stem cell map (that tracks current policies, regulations) for SynBio might be useful (Synbiomap).

Workshop on the Research Agendas in the Societal Aspects of Synthetic Biology

The smaller thematic breakout groups were helpful in providing a different kind of conversational space. I attended those on the bioeconomy and ethics. The bioeconomy, we agreed, was foundational to thinking about SynBio and requires ongoing and systematic discussion. Ken Oye collected a list of email addresses and this will hopefully be used to form some kind of sustained working group.

In the ethics breakout group, an initial question was raised as many of us defaulted to discussions of bioethics and the engineers in the room challenged the privileging of the bio. In part, this seemed to stem from engineering ethics mainly as a form of professional ethics centered around issues of proper design and structural integrity (i.e. making sure the bridge doesn't fall down). But it seems that within engineering there has been relatively little of the broader discussion that has developed in relation to bioethics. However, one engineer brought up the maxim that technological change/engineering is always disruptive. This is an important reminder. While some of us want to focus on the erasures and losses (e.g. of artemisinin farmers), we might recall that emerging technologies inhere – even aim at – disruptions. This should prompt us to include consideration of what such disruptions might be and what their effects might be, and for whom.

The ethics discussion also reinforced the need for truly interdisciplinary approaches. Michael Crow described the restructuring of ASU programs as a way of structuring interdisciplinarity into the curriculum. Such an approach – of integrated and structural interdisciplinarity – is suggestive of a productive approach for SynBio (and emerging tech more broadly). I will simply add that I was impressed with the productive diversity of some of the workshop panels, including, for instance, representatives from the FBI and Monsanto, among others.

Two final points will suffice. One is the call from many with experience in Nano that we need not start from scratch here, but can learn from their experiences and knowledge. What have we learned from other emergent technologies? And several participants called for a systematic exploration of alternatives. We often think that technological possibility and progress are self-justifying, and they provide their own momentum. But this workshop asks us to think carefully and systematically about the broad human and environmental (and etc.) stakes of Synbio, those that call it forward and those that resist.