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# The DIY dilemma

**Misconceptions about do-it-yourself biology mean that opportunities are being missed.**

26 November 2013

The do-it-yourself-biology movement has an image problem. More commonly called DIYbio, it tends to conjure up pictures of T-shirt-clad misfits marshalling limited scientific skill in their basements as they try to make cool-but-fringe things such as glow-in-the-dark plants. Policy-makers take an opposite view: instead of wayward amateurs, they see twisted experts hellbent on harm, engineering pathogens in their garages to unleash upon the world. A survey of DIY biologists released on 19 November by the Woodrow Wilson International Center for Scholars in Washington DC reveals, unsurprisingly, that neither caricature is accurate, and that the DIYbio movement is more nuanced than it would seem to those looking in from the outside (see [go.nature.com/nj9xk6](http://go.nature.com/nj9xk6)).

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The movement is made up of enthusiasts with a range of backgrounds and interests in biology, who work in wet-lab spaces not affiliated with traditional science centres such as universities. The survey found that 92% of DIY biologists work at least some of the time in communal spaces rather than in their garages or basements; that they are mostly young (36% under 35, 78% under 45); that they are more educated than the general population; and that many are still learning the basics of biotechnology. Only 6% of people surveyed said their experiments were of the kind that would require the safety conditions for work that might cause human disease.

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It is interesting to note that 28% of people who responded to the survey said that they already do some or all of their work in academic, corporate or government labs, and that 19% have obtained a doctorate-level degree. So at least some DIY biologists are peers of — or indeed themselves — readers of this journal, and are within the mainstream scientific community.

This undercuts the notion that all DIY biologists are inexperienced if enthusiastic amateurs. And the report argues that this expertise and access to sophisticated lab facilities mean that the DIY community has the potential to generate products that will benefit society. As a result, it recommends that the US government should fund networks of community lab spaces.

Examples of the positive impact DIYbio can have already exist: its practitioners have produced a cheap alternative to commercial machines for the polymerase chain reaction, and they have come up with an inexpensive diagnostics device for malaria. Yet so far, the projects that have garnered the most attention have been essentially frivolous, such as the project to create a glowing plant, which collected

US\$500,000 in public crowdsourced funds last year — ten times as much as the malaria tool earned in seed funding.

**“DIY biologists can do what they like, as long as it’s legal.”**

This highlights the key problem. There is no government granting agency judging which DIY project is worthwhile, so DIY biologists can do what they like, as long as it’s legal. Although this is an intrinsic part of the thrill of being in the movement, it is also a factor that keeps legitimate funders away, and some community labs are threatened with closure as a result. Governments would gain much by supporting the DIYbio movement; it would give them more access to and potentially more control over the work that goes on in labs that they fund.

But the report also notes that most DIY biologists do not favour government regulation, now or in the future. Governments, of course, cannot become more involved in supporting this movement without taking a more proactive role towards regulation. Is this apparent impasse permanent? Perhaps not. The report notes that a sizeable minority — 43% — of DIY biologists do favour some kind of regulation in the future, and this may grow as the movement matures.

The report’s authors anticipate such a change. They suggest benchmarks and timelines to address regulation — a time in the future, for instance, when people outside companies and sophisticated labs will be able to synthesize long stretches of DNA. Still, rather than risk being overrun by events, the DIY-biology community and regulators should start to talk about how to anticipate such developments, rather than merely respond to them.

The security and stability of government funds would safeguard the future of the DIYbio movement; the issue is whether the movement would accept the trade-offs that such stability would bring. If you are reading, then do please tell.

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