

The Problem of Regulating Nanotechnology

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In “‘Governing’ Nanotechnology Without Government?” Dr. Diana Bowman and Graeme Hodge argue that while there should be some governmental involvement in the regulation of the burgeoning nanotechnology industry, largely to assuage public fears over the legitimacy of private-sector governance, most of the responsibility for regulation should fall to the industry players themselves (484). In writing the article, Bowman and Hodge seek to answer the question of precisely how to regulate the industry that has grown up around this novel technology which, due to its unfathomably small scale and potential for self-replication (think viruses), poses entirely new risks along with exciting new opportunities. As nanotechnology becomes more prevalent, particularly in biological applications, there is an increasing need for regulations to govern the process of developing, producing, and marketing it. “‘Governing’ Nanotechnology Without Government?” attempts to answer the question of how best to implement this. But while the authors make a compelling argument in support of their claim, in the process they commit several errors of reason that serve to completely undermine their conclusions. As such, while there are many good ideas to be poached from “‘Governing’ Nanotechnology Without Government?” the claim of the article rests on the quicksands of a logical fallacy and cannot be believed.

At the core of Bowman and Hodge's argument is the premise that self-regulation by the nanotechnology industry is a tenable method of ensuring that the most appropriate guidelines are put into place and followed by the industry participants. This is an easily contestable point, as the authors themselves admit (Bowman and Hodge 478). To begin with, it requires a great deal of public trust that the companies, being bound only by voluntarily-followed civil rules, will follow those rules and do the right thing in regards to the greater public good, even when it may affect their profits. However, this level of trust is hard to come by. In this post-Enron world, after having been privy to the corporate malfeasance and breakdowns of self-regulation at Tyco and MCI WorldCom, and more recently, the massive, systemic failures in the global economic system due in large part to a lack of governmentally-enforced regulation and oversight, the public is wary of trusting that companies will act in the best interest of the public without the specter of a tough governmental regulator, ready and willing to step in should a company try to somehow bypass regulations.

But beyond the unwillingness of the public to accept the validity of voluntary industry self-regulation is the question of whether or not the industry is indeed capable of successfully regulating itself: if rules that are mere recommendations, not mandates, are enough to prevent corporations from choosing the path, heavily tread, that places profits above public safety and well-being. After all, if this is not the case, then to convince the public otherwise, as Bowman and Hodge attempt to do, would be irresponsible at best, and immoral at worst. It is in their attempt to prove that the nanotechnology industry is indeed ready, willing, and capable of accepting and following voluntary self-regulation that Bowman and Hodge commit the logical fallacy that destroys their claim: they draw from the relative successes of BASF and DuPont in regulating their own nanotechnology divisions a hasty generalization that similar such processes should comprise the largest part of the regulation governing the nanotechnology industry (483). That is, they assume that what worked for two corporate giants with a diversity of interests will work equally well for the relatively small nanotechnology company with no name for itself, and with little to lose by ignoring voluntary regulations in an attempt to make such a name for itself. Yet, the authors offer no evidence that this would in fact be the case; they simply take a huge logical leap to extrapolate from the successes of BASF and DuPont to the viability of self-regulation for the entire nanotechnology industry.

As evidence that Bowman and Hodge follow their inductive argument to illogical conclusions, consider that BASF and DuPont differ in important ways from the average technology firm, and that this has helped greatly to make self-regulation work for them. First, they are two extremely large multi-national firms, with interests that cover a huge swath of the entire technology industry. Their enormous size is precisely what makes self-regulation work for them; put simply, they have too much to lose from damaging public trust in their companies, damage which would undoubtedly occur should they be caught flouting regulations, mandatory or not, that are meant to ensure public health and safety. Most technology companies, whether or not they are involved in nanotechnology, are not so large; BASF and DuPont being widely regarded as very large implies that they are large in relation to

the norm, which must, then, be smaller. And though BASF and DuPont may be interested in the market for nanotechnology, they have vested interests in numerous different segments of the technology industry, of which nanotechnology is only a small part. In other words, they are not so tied to nanotechnology that ruination of that division would cause the downfall of the entire company. Because of this, they may be willing to adhere to regulations even when it could lead to contraction of their nanotechnology division. This diversification of interests is a function of the size of the two companies and is unlikely to be mirrored in the bulk of its competitors for just that reason. But what is more valuable to these companies than any of their divisions is their trusted brand name, which they leverage to help them enter new markets more quickly and more easily than their competitors with less brand trust and recognition. This is particularly true in markets such as nanotechnology, where the products initially cause considerable trepidation in their potential customers and where public trust in a brand can help to alleviate some of this uncertainty. While this trust is not necessarily due to their size—for example, Wal-Mart's great size has not earned it the public's trust—it is another characteristic which helps to increase their conformity to regulations, but which is not shared by the majority of the other nanotechnology companies.

To further illustrate the irrationality of Bowman and Hodge's generalization, consider that historically in the development of novel technologies, very small new companies known as startups, which are markedly dissimilar from BASF and DuPont, have made some of the largest gains. This has most recently been seen in the growth of the personal computer in the late twentieth century, where the dominant corporate giants of today, Apple Computer and Dell, were started, respectively, by two people in a garage, and by one college student in his dorm room. Although nanotechnology startups are certain to be larger initially than were Apple Computer or Dell, these relatively small startup companies can logically be expected to play a large part in the development of nanotechnology products, just as they have played large roles in the growth of previous technological industries. This raises concerns, since these types of companies have very little to lose by skirting, or even ignoring, voluntary industry guidelines. These companies have no public trust built-up. They have no vast corporate coffers for potential litigants to drain, should someone who was harmed by the company having not followed the rules decide to sue them for damages. They have only their time and their initial investment to lose, and in a new technological arena such as this, what is at stake is a potential monopoly on some segment of the industry, or even the industry as a whole. Without fear of mandatory government regulations to keep them in check, and with such a large carrot goading them on, these startups stand poised for disaster. It requires little imagination to come to the conclusion that a small company, with little to lose and much to gain, unhindered by governmental mandates guaranteeing the safety of their work and the products thereof, and which is interested in entering the market for, say, self-replicating nanobots to be used in medicine, could very easily cause significant harm to public health.

Leaving behind the issue of safety for the moment, there is another issue looming on the horizon: the fear that if governmental agencies take the lead role in the regulatory process, producing what Bowman and Hodge term “command and control” legislation, that this would then slow development of nanotechnology to a crawl (477). That is certainly a possibility; governmental action does not have the reputation of proceeding at lightning pace toward its goal. Although there has not been presented any evidence to date that shows that this slowdown would indeed occur, should governments take a fully active role in regulating this industry, the notion is certainly plausible. However, a slowdown in technological development is no reason to weaken protections for public safety by replacing governmentally-enforced mandates with voluntary industry rules. Nanotechnology offers exciting possibilities, this is true, but civilization, having proceeded through all but its most recent history without such technology, has not so far collapsed in on itself under the duress of not having it. Critics should, then, if they are reasonable, agree that adding a few years wait, on top of the several millennia which have already passed, will not bring to bear any consequences which could be considered intolerable.

In their paper, Bowman and Hodge raise interesting points and offer a premise which is understandably enticing to players in the nanotechnology industry: that they can write their own rules and that the rules which they create can be modified to adapt to changes as often as they see fit and as quickly as they are able to amend them; this particular process, the authors feel, “provides scope for innovation, creativity and flexibility” (477-478). However, their core argument, without which their claim falls apart, rests on a logical fallacy. Their paper, while it may be referenced for some of the individual ideas contained within, cannot be trusted.

Works Cited

Bowman, Diana M., and Graeme A. Hodge. “‘Governing’ Nanotechnology Without Government?” *Science & Public Policy (SPP)* 35.7 (Aug. 2008): 475-487. *Academic Search Premier*. Web. 18 Jan. 2009.