

Agita over 3D printed guns is absurd

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Hobbyists, tinkers, and DIYers are the unsung heroes of our industry — "hackers" in the original sense of the word. But conflating "hobbyists" with "guns" causes fits of hysteria. And it's entirely unwarranted.

The handwringing over the imagined capability to print 3D guns and the associated moral implications is absolutely absurd and betrays a basic misunderstanding of firearms and physics.

This all stems from [Defense Distributed](#) [1], a "Wiki Weapons Project" with aims of producing a fully printable firearm and distributing the plans via the Internet. The group — courtesy of its founder, Cody R. Wilson — makes no bones about its political leanings and support for the 2nd Amendment.

"How's that national conversation going?" asks Wilson in a video showcasing a printed 3D magazine. The University of Texas School of Law student is referring to Democratic House Majority Leader Nancy Pelosi's call for a "new conversation" on gun control.

His organization has a [simple goal](#) [2]: "produce and publish a file for a completely printable gun- or as near to completely printable as actually possible with current technologies." The aim is to circumvent existing gun control laws and proposed edicts (on high-capacity magazines, for example), but the real goal is to show the futility of all such measures.

"This project might change the way we think about gun control and consumption. How do governments behave if they must one day operate on the assumption that any and every citizen has near instant access to a firearm through the Internet?" the group states on its website.

Practically speaking, Defense Distributed's (admittedly noble) goal may run afoul of the laws of thermodynamics, physics, and several other disciplines, but I'll get to

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that later. Like my colleague, [Kasey Panetta](#) [3], I feel that any conversation about printed guns must necessarily involve the fundamental issue of gun control.

On that, I have very strong opinions: Most existing (and proposed) gun-control laws show a basic misunderstanding of firearms (and constitutional rights).

An [assault rifle](#) [4] is a selective-fire rifle with the capability to switch between automatic, semi-automatic, and burst firing modes. Many of the most common military weapons — the AK-47, M-16, M-4, and several others — fit this definition. An "[assault weapon](#) [5]" is a make-believe political term which describes a rifle that shares many of the cosmetic features of an assault rifle but which lacks several crucial faculties — the ability to go full-auto, for one.

Most newsrooms, politicians, and pundits swap "assault rifle" for "assault weapon", but the terms are not interchangeable. An NPR article, for example — "[Assault-Style Weapons In The Civilian Market](#) [6]" — refers to the weapon used by Newton, Conn. shooter, Adam Lanza, as an "assault rifle." In reality, Lanza used a Bushmaster [XM15-E2S rifle](#) [7], a civilian semiautomatic rifle that should not be confused with an "assault rifle."



Slate [describes](#) [8] an "assault weapon" as a gun that can "eject spent shell casings and chamber the next bullet without human intervention" and "only one round is

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fired per squeeze of the trigger." In other words, semi-automatic. This is the most important criterion for an "assault weapon," as defined by politicians.

The military apparatus owns and operates assault rifles. Civilians, by and large, do not.

The 1994 Assault Weapons Ban focused on the more restrictive definition of an "assault weapon." And recent efforts to revive this ban — in light of the Sandy Hook Elementary School shooting — would traverse the same lines. But the definition of an "assault weapon" could be extended — by design or modification — to certain kinds of pistols and hunting rifles. Let me repeat that — many pistols and hunting rifles fit the definition of an "assault weapon." In essence, we'd be legislating a gun because it looks scary. And that's a terrible reason to enact new laws.

But nevermind politics. The more pertinent question should be — is printing an "assault weapon" technically feasible? If so, what are the moral implications?

The answer to the first question appears to be no — for now, anyway. Recent efforts to fulfill Defense Distributed's mandate have focused on printing plastic magazines and lower receivers, the components under the least amount of stress. The lower "[receiver](#) [9]" is the portion of the firearm (technically, the firearm itself) which houses the bolt carrier group, trigger group, and magazine port.

While early parts crumpled after 6 rounds, Defense Distributed posted a video (seen above) which shows a 3D printed receiver that withstood over 600 rounds. But this is nothing revolutionary. As David Chernicoff notes in a ZDNet article, "[No, you can't download a gun from the Internet](#) [10]," commercial [receiver] products made of plastics, polymers, and carbon fiber have been available for years.

The only innovation comes from the fact that Defense Distributed's part is printed, not manufactured (naturally, this makes the former harder to regulate, but that's a separate issue).

It becomes much more problematic when you try to create a fully printable gun and introduce hot gases (most semiautomatic weapons are gas-operated) to plastic parts. And this is why many feel that a completely printable gun — a plastic version, anyway — is a pipe dream.

Defense Distributed, itself, acknowledges this basic fact — "These guns will be almost completely plastic, so melting and failing in your hand will be a concern."

David Chernicoff summarizes the mechanical challenges behind creating a semiautomatic rifle wholly from plastic.

"If you still think that you'll be able to print a complete firearm in the near future consider this; the Sporting Arms and Ammunition Manufacturer's Institute standard for chamber pressure for a .22 LR round, generally the smallest and lowest pressure

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rifle or handgun caliber, is 24,000 PSI, far beyond the thermoplastic capabilities used in most 3D printers. And just as a reference point, the SAAMI specification for .223, used in the commercial versions of the AR-15, is 55,000 PSI."



All of this begs the question: Why all the agita over a lofty (probably unattainable) goal when it's far easier and cheaper to obtain a *metal* firearm from your local gun dealer (or the back of someone's van)? Who thinks that a deranged person will go to all the trouble of printing his own gun? (if such a thing is possible) Who thinks they'll choose the path of least resistance?

This entire scenario smacks of a lot of strawmen, assumptions, and doomsday scenarios that probably won't come to pass and obscures a neat technological development. And the 2nd Amendment? It seems lost amidst all the noise.

According to the [Bureau of Alcohol, Tobacco, Firearms and Explosives](#) [11] (ATF), individuals can make their own firearm, but they can't sell or distribute it. So the legality of 3D printed guns is not in dispute. Rather, most of the handwringing focuses on the inherent difficulty in regulating these DIY creations.

"Do we really want to live in a future in which gun control is effectively impossible?" [posits](#) [12] Andrew Leonard in Salon.

Yet that seems to be exactly what Defense Distributed is attempting — if not to circumvent existing gun control measures then to prove that such laws are fruitless.

For now — and possibly forever — the agita over 3D printed guns is premature and

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a bit absurd. A fully printable firearm (that doesn't melt or fall apart) doesn't seem possible, and in any case, it certainly wouldn't be the cheapest or easiest way of obtaining a gun.

And to those who ask "Why?" I say "Why not?" Why not explore the technological boundaries? Why not allow DIYers to do what they've always done — innovate.

Our first reaction to every technological advancement shouldn't be a headlong rush to regulate it.

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Links:

- [1] <http://www.defensedistributed.com>
- [2] <http://defensedistributed.com/proofgun-2/>
- [3] <http://www.ecnmag.com/blogs/2013/03/why-3d-printable-guns-are-terrible-idea>
- [4] http://en.wikipedia.org/wiki/Assault_rifle
- [5] http://articles.philly.com/2012-12-22/news/35955483_1_assault-weapons-assault-weapon-bans-fully-automatic-firearms
- [6] <http://www.npr.org/2012/12/20/167694808/assault-style-weapons-in-the-civilian-market>
- [7] <http://www.grampasgunreviews.com/BushmasterXM-15-E2S/>
- [8] http://www.slate.com/articles/news_and_politics/explainer/2004/09/what_is_an_assault_weapon.html
- [9] http://en.wikipedia.org/wiki/Lower_receiver
- [10] <http://www.zdnet.com/no-you-cant-download-a-gun-from-the-internet-7000002108/>
- [11] <http://www.atf.gov/firearms/faq/firearms-technology.html>
- [12] http://www.salon.com/2013/01/25/will_computers_kill_gun_control/