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# DOD's 3D Printing Push Leaves Legal Questions Open

By **Daniel Wilson**

*Law360 (August 14, 2019, 7:24 PM EDT)* -- The U.S. Department of Defense's increased use of 3D printing presents a range of complicated legal questions in need of resolution, such as product liability issues and accounting for related data rights in defense contract negotiations.

3D printing is such a new area for the DOD that important legal and contractual issues related to its use have yet to be fully hashed out, even if a 3D-printed product might look and function similarly to a traditionally manufactured item.

For example, when parts can be printed, that changes the calculus for data rights negotiations in defense contracting, according to several attorneys. And when parts are made differently compared to how they have traditionally been made, potential product liability claims can also get more complicated, they said.

"Right now both DOD and private industry are still experimenting with this, so even though 3D printing is very real … it has not yet become mainstream enough where we're going to see a lot of disputes just quite yet," Armani Vadiee, an attorney at Smith Pachter McWhorter PLC and former federal contracting officer, said. "But I think it's coming."

3D printing, or additive manufacturing as it is otherwise known, uses a computer-aided design, or CAD, file, with the printer depositing layers of a base material — such as plastic pellets or metallic powder — together to form a whole. In contrast, traditionally manufactured parts are usually carved out from a single large piece of a base material.

The DOD, alongside NASA, has been a leader in pushing the use and development of 3D printing, not just within government but more broadly within society. The department benefits from being able to print parts in the field, or at least closer to where the printed products will be used, saving time and money and helping to avoid logistical challenges, attorneys noted.

"The Department of Defense has been pushing advanced manufacturing for obvious reasons — the ability to make rapid repairs and to print tools and parts on demand is quite significant," said Hogan Lovellsattorney Michael Mason, who has tracked the use of 3D printing in federal contracting for years. "It means that the military can carry fewer spare parts if they have a 3D printing capability."

As well as benefiting the Pentagon, 3D printing can also be a boon for defense contractors, with

potential benefits including reducing waste materials and being able to more easily manufacture complex parts that are expensive or difficult to make using traditional manufacturing processes, attorneys said.

Other potential benefits include being able to produce low-volume parts without expensive overheads, and being able to make quick tweaks to address design or manufacturing issues, they noted.

At the same time, there is a lot of legal and regulatory murkiness around the use of 3D-printed parts that has made some contractors uncertain about integrating the technology into their defense programs, attorneys said.

The issue that seems to be causing the most heartburn is data rights around 3D-printed parts, according to those attorneys. Although not commonplace in defense contract negotiations yet, the issue of 3D printing rights is starting to creep in, particularly in prototyping deals, attorneys said.

For traditionally manufactured parts and equipment, even where the DOD seeks access to technical data, contractors nonetheless often expect that the department will turn to them to make spare or replacement parts, attorneys noted. That can be a lucrative part of defense contracting, and is factored in when a vendor is proposing pricing, or deciding whether they will bid for a contract at all, attorneys noted.

The possibility that the DOD can print parts itself, or shop that work out to other contractors — potentially exposing valuable information beyond just how to make a particular product — changes the assessment prospective contractors have to make when weighing how much data they're willing to share, and what it's worth to them, they said.

"There's a lot of things in [a CAD] file that you can't know just by looking at the part that are very valuable in actually making the part in 3D printing, that might require a competitor to go through a lot of trial and error and independent development," Arent Fox LLP attorney Jeff Vockrodt, an intellectual property specialist, said.

It also changes the level of protection contractors need to place on any technical data they are willing to share with the DOD, according to Crowell & Moring LLP attorney Gail Zirkelbach, who has also closely watched the growing use of 3D printing within government contracting.

"If you're going to give the government the ability to print your part, you're going to have to make sure that you have got your IP and the data you want to preserve your rights in very carefully labeled, and it has to be very clear from your initial proposal, through the contract, through the delivery of the ability to do the printing what rights you are retaining," she said. "And a failure to mark identify [your IP] at any one of those three stages could result in you losing your rights."

Then there is the issue of potential counterfeiting, either in the materials used or a 3D printer itself, attorneys said, as well as the issue of where liability lies if a 3D-printed part fails or isn't fit for its purpose, according to Mason.

"You have some complicated product liability issues — if something goes wrong, is it the design of the product? Is it a defect in the CAD file? Is it a defect in the 3D printer? Or is it the way that the user utilized the 3D printer that created the defect?" he said.

Maintaining good cybersecurity is also very important with 3D-printed products, considering hackers could compromise CAD files or the printer itself, attorneys noted — an issue that is not as prevalent with traditional manufacturing equipment, which is often either not networked, or at least not linked to the internet at large.

Not only could a CAD file be sabotaged by a hacker, it could also be stolen and used elsewhere, putting the contractor on the hook for violations of rules for safeguarding defense information, attorneys said.

And even if a contractor just wants to move from using a traditionally made part to a 3D-printed part that is otherwise functionally equivalent, that —for purposes such as airworthiness certifications — may as well be an entirely new part, Vadiee noted.

"When you have [for example] an aerospace part that's being manufactured, that's gone through certain testing and qualification, once the manufacturing process changes, you're not just able to swap out a different part that by all accounts is equivalent," he said. "Creating a 3D-printed equivalent part is going to take its own qualification, and approval, and acceptance from the customer."

With no sign of the DOD slowing down in its use of 3D printing, it is only a matter of time before at least some of these issues come up in court or at the U.S. Government Accountability Office, attorneys said.

There is also another fundamental question that may eventually come up in a bid protest, they noted: If all else is equal between contract bidders, does the use of a 3D-printed part make a difference in a bidder's position against its rivals?

"We're very much watching this closely to see where this is going; as with all emerging technologies, it's going to take several years before we start seeing where the rubber meets the road," Vadiee said.

--Editing by Breda Lund.