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RESEARCH SUMMARY

Guns, Limbs, and Toys: What Future for 3D Printing?

3D printing has the potential to transform many industries. As with many disruptive technologies, both anticipated and real change has been met with a mix of excitement about the potential of the technology and apprehension about the ability of governments to effectively regulate it.

In "Guns, Limbs, and Toys: What Future for 3D Printing?," Adam D. Thierer and Adam Marcus propose that today's regulators take their cue from the successful regulation of the internet in the 1990s and adopt a rule of "permissionless innovation" rather than the precautionary principle when considering new laws and regulations. This would mean addressing problems that actually arise rather than regulating in anticipation of potential problems. Thierer and Marcus propose a 10-point general policy framework:

- Make permissionless innovation, rather than the precautionary principle, the default policy position.
- Protect free-speech uses of 3D printing, including blueprints and instructions.
- Immunize intermediaries, such as those who sell 3D printers, from legal liability.
- Rely on existing legal solutions and the common law to combat misuse of 3D printing.
- Allow insurance and competitive changes to develop organically to address new forms of risk and economic tensions before regulating.
- Focus on educational approaches about the proper use of the new technology.
- Consider industry self-regulation and best practices.
- Don't underestimate the importance of social norms and pressures.
- When using regulation and legislation to address problems that arise, take measures that target the problem rather than enacting blanket policies.
- Evaluate any regulation of 3D printing with benefit-cost analysis.

To illustrate how this framework would work when applied to difficult areas of public policy, this paper evaluates three areas in which 3D printing is likely to pose challenges for policymakers: firearms, health technology and medical devices, and trademark, patent, and copyright violations.

- The Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF) already regulates firearms produced for sale and prohibits undetectable firearms. Given the (likely insurmountable) challenge of controlling the spread of electronic plans, the ATF should shift its focus to education about the legal possession and sale of firearms and continue regulating the users and uses of firearms rather than struggling to regulate decentralized manufacturing.

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- Health technology and medical devices can be customized and created by 3D printers at home and on demand, but their manufacture is regulated by the US Food and Drug Administration. These regulations are ill suited for highly decentralized production methods like 3D printing, so the FDA should focus on providing guidance documents for manufacturers and educating end users about the relative risk tradeoffs of using different products. It should shift to regulating products rather than regulating their manufacture.
- 3D printing can be used to infringe on trademarks, patents, and copyrights because it makes it easy to duplicate goods once a model is created. However, existing intellectual property regulations and legislation should be sufficient to address problems with infringement, which are not novel.