

Open-Source Hardware and the Digitization of Things

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Physical objects are increasingly designed, shared, and changed in a digital environment. Three-dimensional (“3D”) CAD programs, 3D scanners, and 3D printing are generating an ecosystem where mechanical innovation is accomplished in a largely digital environment at very low costs. Digitization allows innovators to share designs across the world, and for decentralized, enthusiastic groups of people to comment on and improve upon initial designs. These characteristics of 3D printing and related technology have contributed to a burgeoning “open-source hardware” movement in which innovators release designs of physical hardware to the public for reuse, comment, and improvement. Among the many interesting questions raised by the open-source hardware movement is to what extent can it coexist with the current patent regime?

The two primary justifications for the patent system are that it incentivizes inventions and that it incentivizes commercialization of inventions. 3D printing and related technologies change the calculus for both of these justifications in many fields by dramatically lowering the cost of invention and commercialization. This in turn raises the question of whether the patent system should be adjusted to account for this new reality.

Our patent system is a one-sized fits all attempt to cover very different invention types, including electronics, internet-related technologies, pharmaceuticals, and mechanical devices. Of course, one size does not fit all, and different technologies would see optimal growth under different sets of patent laws (e.g., term of patent). While commentators have argued for disaggregating patent laws for different invention types, the proposals have gained little traction. Instead, perhaps our one-sized patent system should be adjusted to a new “median” in light of the new characteristics and relative importance of the varying technologies covered by the patent laws.