

Litigation Management

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Rewriting the RULES

Additive Manufacturing Creates New Rules for Products Liability

By Ian Stewart and Terry Wohlers

A new technology has the potential to rewrite the rules for how we think of product liability. Additive manufacturing, also known as 3-D printing, is the process of joining materials layer by layer to make objects from a 3-D model, as opposed to traditional subtractive manufacturing through the use of machining, turning, drilling, injection molding, casting, etc. A 3-D printer uses a computer file to make a series of horizontal cross-sectional slices to create the 3-D object.

The technology was originally used to build prototypes, not finished products, but that is now changing. Today, additive manufacturing is used to create a wide array of products such as furniture, jewelry, home and personal accessories, automotive and aerospace parts, jigs, fixtures and tooling for manufacturing, hearing aids, orthopedic implants, and dental crowns and bridges. Machines currently in use can produce complex products with moving parts such as a clock or a gearbox without the need for assembly. They can produce products made of a wide range of plastics, composites, metals and alloys.

Additive manufacturing has proven to cut time and cost, reduce waste and promote innovation by removing barriers for entry to the market. Each product can be created individually so design changes are easily made from one "printing" to the next. Open source product designs made available on the Internet allow consumers to download products, make changes if they wish and then print them.

Additive manufacturing has the potential to force changes to the product liability system, which is currently premised on the existence of a discrete chain of distribution that typically includes an identifiable product designer, manufacturer, distributor and retailer. Additive manufacturing dis-

rupts this traditional structure by blurring the roles of those in the traditional supply chain, and by potentially creating a role for the consumer in that chain. Traditional manufacturing typically involves a refined design process prior to manufacturing, followed by downstream efforts to market, distribute, sell and support the product. Additive manufacturing upends this system by allowing everyday consumers to get involved in the design process. What's more, almost anyone, located almost anywhere, can now become a manufacturer.

Consider the scenario of a small web-based company that sells an electronic design for a new product to an intermediary that changes the design and sells it to the ultimate con-

sumer, who then performs some additional "tweaks" to the design before printing it. Under this scenario, who can properly be characterized as the designer, manufacturer or distributor of the product in the event of injury or loss? Where multiple persons can easily change the design, tracing the product's design history may be difficult. Each distributor may also be difficult to identify for a product that can be bought and sold as easily as a smart phone application or MP3 music file. Conversely, the manufacturer may simply be the consumer who pushes print on a 3-D printing machine.

The intellectual property implications are also important for those in the business of additive manufacturing.

Additive manufacturing may also complicate the ability to prove the existence of a defect under traditional product liability principles. For example, how can one prove the expectations of an "ordinary" consumer when the design can be modified to fit the needs of each consumer individually? Imagine the hurdles presented in trying to defend against an "alternative feasible design" theory when faced with a product that

can undergo design changes with such a low level of cost and difficulty. Determining what warranties may attach to the product may also be a challenge with additive manufacturing. One may expect the upstream designer to disclaim any warranty for downstream design changes. In addition, there are significant implications for international product liability issues for product designs that can cross borders so easily.

Similar questions also arise from an insurance perspective. For example, how does one underwrite liability for the designer of an open source electronic design that may be changed at will once it leaves the designer's control? Conversely, how does one underwrite liability for a company that pur-

chases and uses designs that may have undergone untested changes? Insurance companies will be faced with these questions as this new technology and market develops. The intellectual property implications are also important for those in the business of additive manufacturing. Coupled with 3-D scanning and software tools, existing designs can be quickly and inexpensively modified and produced. For example, it has become surprisingly easy to put a person's head and face on the body of a Barbie Doll, Mickey Mouse or a number of other well-recognized figures.

These novel questions must be answered by the manufacturing and insurance industries and, ultimately, by the courts. It is nevertheless clear that this new technology has arrived and our legal system will have to adapt. **LM**

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