

## 3D Printing and the Age of Disruption

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Theme: [History](#)

Global Research, November 02, 2014

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*Disruptive technology is that which overturns an industry unable to adapt or evolve to meet competition enabled by a technological edge. This has occurred across various media industries - from the newspaper to large network news channels, to music and movie producers - the dropping cost of entering the market and competing either directly or by undermining previously monopolized channels of distribution have challenged special interests' grip on information.*

Many have predicted such a disruption across other industries beyond the digital world and within the physical, tangible world.

3D printing, more than any other technology, has served as the bridge between digital and physical disruption. The ability to turn digital files into physical objects allows people to design, scan, share, and send digital representations of physical objects just as they can images or text online. With 3D printers, these objects can be printed out in an increasingly larger number of materials and with ever improving resolution. They can also, at times, be printed out for far cheaper than it would be to buy them from a traditional manufacturer.



**Image;** 3D printing has begun disrupting businesses in the physical world just as file sharing has disrupted media businesses in the digital world. Here, a user printed out their own tabletop game pieces, saving hundreds of dollars in the process.

It appears the first industry to be hit by the disruptive power of 3D printing are those that produce small plastic objects. This includes British-based tabletop game company, Games Workshop (GW). GW produces miniature plastic game pieces for strategic games that could be compared to very elaborate chess. These pieces can be prohibitively expensive to collect in the large numbers necessary to play a game – and it should be remembered that at least two sets are required.

With a 3D printer costing less than some entire “armies” needed to play GW’s games, it should not be surprising that people with access to 3D printers have begun printing out vastly discounted “armies” of their own. 3D Printing Industry in their thought-provoking article, [“Redditor 3D Prints His Own Warhammer 40K Army,”](#) reports:

A Reddit user posted a picture of his 3D printed Space Marine army for the tabletop miniature game Warhammer 40,000. The work-in-progress army isn’t perfect, but it’s close enough to the real thing that I would imagine Games Workshop – the games manufacturer – might start to get a little worried.

The growing popularity of 3D printing figures and armies for Warhammer games, to me, says more about the rapidly increasing prices of Games Workshop products than the current accessibility of 3D printers. Armies can regularly cost several hundred dollars, and, depending on the army being created, it can get uncomfortably close to \$1000. The Redditor that printed this army said these models would have cost in excess of \$300, and the army isn’t even complete yet.

The article goes on to explore the implications of this, noting that while resolution is not on par with GW’s own products, soon it may be. The article also warns of an impending backlash from various industries threatened by the disruptive potential of 3D printing – resembling the media’s war of litigation waged unsuccessfully against file sharing.

## **Handling Disruptive Technology**

For GW or any other company to attempt to replicate the music and movie industry’s war on file sharing, would be an act of desperation and a signal to shareholders, investors, and even customers that the end is near. Disruptive technology demands innovation as a countermeasure – innovation that cannot be negated by disruptive technology. Horse cart makers lobbying the government to ban cars either never took place, or didn’t work. For horse cart makers to have survived, they needed to be visionary enough to disrupt themselves. Upon seeing the first car drive past them down the road, thoughts of retooling their workshops to manufacture either entire cars, or parts for cars should have been the first thing that came to mind.

That is precisely what iMedia Connections argues in its article titled, [“Why you should disrupt your own organization.”](#) Under a subtitle “Disrupt Yourself,” it states:

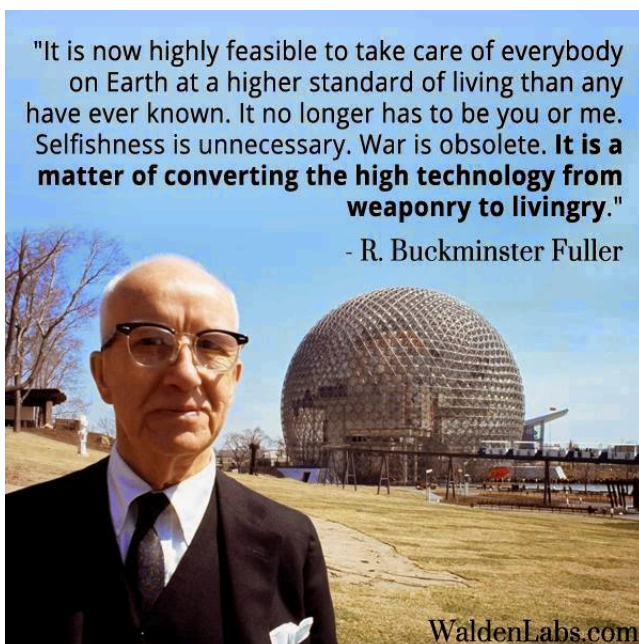
The first step you can take is to change the model itself. One example of this is the hospitality industry. The hotel chain Hyatt, which has a market cap of about \$8.4 billion, was disrupted by the wildly popular Airbnb, a private company that is estimated to be worth \$10 billion. Airbnb changed the very notion of how people can book rooms when they travel or rent out extra spaces. A complete shift in thinking can bring new opportunities to the forefront and better fit consumer needs.

Another example is Ford Motor Company, a traditional player in the high-volume automobile manufacturing industry, versus Local Motors, which focuses on open-source, low-volume manufacturing and uses 3-D printing for some of its components. Local Motors focused on the opportunities that became available when you remove the restrictions of traditional manufacturing and allowed your perceptions to be disrupted.

Disruptive technology only becomes disruptive when affected businesses refuse to accept that their comfortable business model is antiquated. Shifting business activities either toward exploiting trends, or around them where disruptive technology has yet to reach, is the only way for a business to survive. For Games Workshop, the notion of doing something else other than making plastic game pieces may not have occurred to them. Unfortunately, 3D Printing Industry predicts GW will most likely pursue legal “take down” actions on an increasingly larger scale to combat people 3D printing their own armies. This is a hopelessly doomed strategy - and may even spur an open source gaming community that makes Games Workshop irrelevant altogether.

Instead, what if Games Workshop embraced 3D printing, accepting the lower costs? What if they produced their own printers, plastics, paints, and guides? What if they offered an online database with official 3D files for sale at deep discounts like those the movie and music industry resorted to? What if they branched out into other business activities to capitalize on story-telling? This could keep Games Workshop in business, and avoid the unpleasant transition process the movie and music industry made - and in fact - are still making.

## Post-Scarcity Will Disrupt Everyone



Ultimately, technology will make it possible to do virtually anything for next to no cost.

When technology reaches this point, the concept of big-business itself will be disrupted. And just as each individual disruptive technology is met with monopolists kicking and screaming to turn back the clocks and maintain the status quo, the disruptive paradigm of post-scarcity is also meeting resistance.

Contrived concepts like “intellectual property” and an increasingly stifling array of rules and regulations to make it all but illegal to make or do anything unless you are a Fortune 500 corporation, appear aimed directly at this paradigm shift. Disruptive technology – benefiting we the people – is in a race against monopolies and their means of controlling and stifling progress to their benefit. The key to winning this race is for people to realize the liberating threshold they have arrived at, and the necessity of crossing over it.

Visiting one’s local hackerspace or makerspace, learning to design in 3D, owning a 3D printer, and in general any productive hobby or interest that involves literally shaping the world around us helps push us all collectively over that threshold. By supporting industries willing to accept progress and the shifting paradigm, and boycotting and replacing those that don’t, we can weed out those who will work the hardest against us while propping up those that are willing to work with us.

Open source, collaboration, cutting-edge personal manufacturing technology, local, organic, and even urban agriculture, are collectively a representation of post-scarcity’s incremental creep forward. Taking ownership of not only the technology that constitutes modern civilization, but the socioeconomic models within which it is used, will ensure our interests rather than a handful of business elites, defines the future we are to live in.

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