



# Trajectories to reconcile sharing and commercialization in the maker movement

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## KEYWORDS

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**Abstract** Maker technologies, including collaborative digital fabrication tools like 3-D printers, enable entrepreneurial opportunities and new business models. To date, relatively few highly successful maker startups have emerged, possibly due to the dominant mindset of the makers being one of cooperation and sharing. However, makers also strive for financial stability and many have profit motives. We use a multiple case study approach to explore makers' experiences regarding the tension between sharing and commercialization and their ways of dealing with it. We conducted interviews with maker initiatives across Europe including Fab Labs, a maker R&D center, and other networks of makers. We unpack and contextualize the concepts of sharing and commercialization. Our cross-case analysis leads to a new framework for understanding these entrepreneurs' position with respect to common-good versus commercial offerings. Using the framework, we describe archetypal trajectories that maker initiatives go through in the dynamic transition from makers to social enterprises and social entrepreneurs.

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## 1. Maker technologies boost social entrepreneurship

Fab Labs and makerspaces that offer internet-enabled design and production technologies—including open source CAD software, computer-aided

3-D printers, and various other digital fabrication technologies—have brought industrial-quality product development facilities within reach of individuals and communities that lack significant financial resources. These technologies form generative mechanisms for the emergence of a 'maker movement' (Anderson, 2012; Dougherty, 2012), unlocking vast entrepreneurial opportunities that many observers and scholars believe will have significant disruptive effects on the incumbent industrial paradigm (Hagel, Seely Brown, & Kulasooriya, 2014; Hessman, 2015).

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The maker movement has grown significantly since the first Fab Lab was founded at MIT in 2003. There are now more than a thousand labs registered on fablabs.io and nearly 700,000 uploaded designs on Thingiverse. This rapid increase in Fab Labs and shared designs shows that the maker movement is becoming more visible and, hence, more accessible to those interested in digital fabrication.

Many makers are driven by social ideals of improving the lives of underprivileged people and caring for the natural environment, often subscribing to the sharing principles of the open source movement. Many consider their social goals as being more important than commercial success. However, in order for their idea to scale up and realize its potential impact, they need financial backing, which generally implies having a product with wide appeal.

A recent and interesting example is the Superbook (Hurst, 2016). At the beginning of 2015, two independent makers developed a prototype of a laptop shell comprised of a keyboard, screen, and battery that can use the computer power of smartphones to run like a normal laptop. Their Kickstarter campaign in July 2016 was backed by over 16,000 individuals to the tune of almost \$3 million. A social motivation of the project is to help remote African communities that have limited access to computers, despite many people having mobile phones that carry computer power. So, it would appear that these makers have balanced their sharing ideology with business sense by making a product that gives a boost to the disadvantaged but is also attractive to a wide audience in developed countries. However, this example appears to be the exception to the rule as, to date, relatively few highly successful maker startups have emerged.

There is a significant gap in management and social entrepreneurship literature explaining how emerging transformational technologies that are serving as generative mechanisms for maker initiatives are creating entrepreneurial opportunities. This phenomenon points to the need for an explanation of the tensions between sharing and commercialization (Besharov & Smith, 2014; Dacin, Dacin, & Tracey, 2011).

## 2. Maker technologies as generative mechanisms

Emerging technologies have been described as generative mechanisms, providing individuals and organizations with the means to transform industries, disrupt economic models and bring about societal

change (Cohen & Amorós, 2014; Dacin, Goodstein, & Scott, 2002; van Aken, 2004). This view is in line with the idea of creative destruction (Schumpeter, 1942) as a basis for the notion of disruptive innovation, whereby new technologies allow for the emergence of a new dimension on which innovative products can gain a competitive advantage (Christensen, 1997).

According to Anderson (2012), the maker movement shares the following three characteristics that capture its transformative potential:

1. Makers create digital designs and prototype them with the help of digital fabrication tools.
2. A guiding principle is that makers share these designs and collaborate in online communities.
3. Makers use common design file standards (i.e., the designs are, in principle, compatible with commercial manufacturers systems).

### 2.1. Entrepreneurial opportunities and new business models

In order for such new technologies to realize disruption, entrepreneurs must develop business models that embody attractive value propositions (Demil, Lecocq, Ricart, & Zott, 2015). A business model explicates a firm's logic for value creation and capture. The business model describes how a focal firm taps into its ecosystem to perform the activities that are necessary to fulfill the perceived customer needs (Zott, Amit, & Massa, 2011).

For the purposes of this article, we are interested in business models that enable the creation of social value instead of or alongside commercial value. A significant number of entrepreneurs, including many makers, use their resourcefulness with an explicit objective: to change society for the better, whereby they attempt to efficiently meet the needs of society's underprivileged that have been failed by markets and governments (Seelos & Mair, 2005). Due to their social motivation, such social enterprises generally exhibit highly collaborative, open, and sharing work practices, far removed from the closed, protective stance of most commercial organizations.

However, such entrepreneurs and makers that strive for social value creation often face competing internal logics, which are socially constructed sets of practices, assumptions, values, and beliefs that define an organization's understanding and behavior (Thornton, Ocasio, & Lounsbury, 2012). On the one hand, in order to realize their social innovation, they make choices based on the common good; an

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