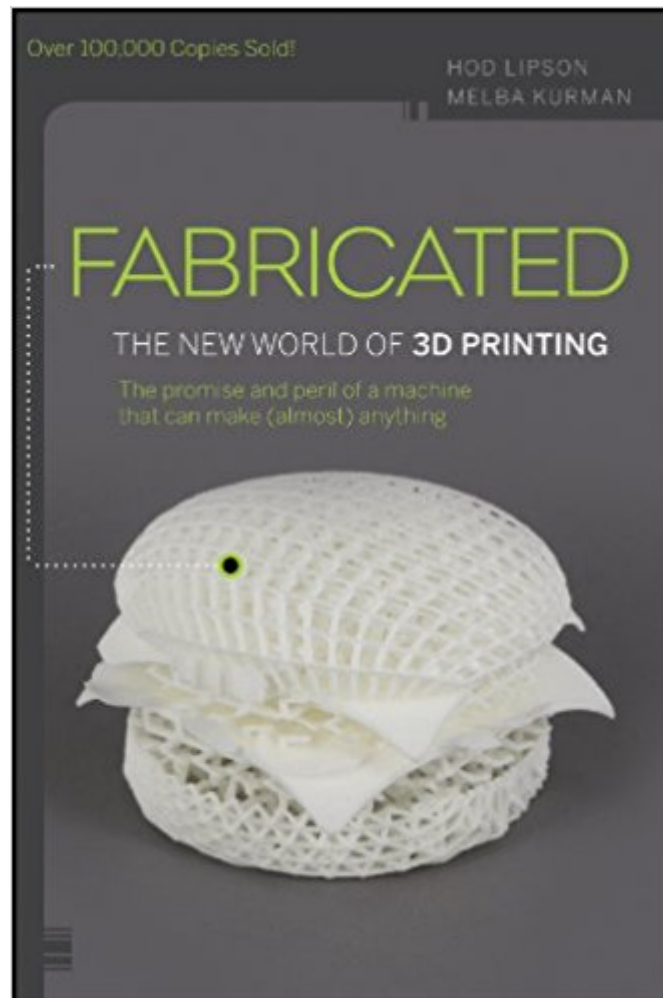




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Fabricated: The New World Of 3D Printing



Synopsis

Fabricated tells the story of 3D printers, humble manufacturing machines that are bursting out of the factory and into homes, businesses, schools, kitchens, hospitals, even the fashion catwalk. The magic happens when you plug a 3D printer into today's mind-boggling digital technologies. Add to that the Internet, tiny, low cost electronic circuitry, radical advances in materials science and biotech and voila! The result is an explosion of technological and social innovation. Fabricated provides readers with practical and imaginative insights to the question "how will 3D printing technologies change my life?" Based on hundreds of hours of research and dozens of interviews with experts from a broad range of industries, Fabricated offers readers an informative, engaging and fast-paced introduction to 3D printing now and in the future.

Chapters and contents

Chapter 1: Everything is becoming science fiction. What would "just another regular day" look like in a future, 3D printable world?

Chapter 2: A machine that can make almost anything. Information morphed from analog form to digital. Will physical objects be next? Ten key principles explain 3D printing's disruptive power.

Chapter 3: Nimble manufacturing. Emerging business models lie somewhere between mass production and the local farmer's market. Small-batch manufacturing is becoming profitable, freeing entrepreneurs from the tyranny imposed by economies of scale.

Chapter 4: Tomorrow's economy of printable products. 3D printing, low-cost design and manufacturing technologies create new market opportunities as consumers increasingly crave on-demand, custom "experience" products.

Chapter 5: Printing in layers. For those of a technological bent, a deep dive into the inner workings of the 3D printing process.

Chapter 6: Design software, the digital canvas. Without an attached computer, a 3D printer is just an elaborate paperweight. An overview of design software and "digital capture."

Chapter 7: Bioprinting in "living ink." Design software and 3D printers read medical scans to fabricate living tissue and custom artificial joints. How long before all of us can tap into this Fountain of Youth?

Chapter 8: Digital cuisine. Today you can 3D print "high resolution" and delicious shortbread, chocolate figurines and tortillas. In the future, Quantified Selfers and couch potatoes alike will balance their diets by streaming biometrics to a food printer.

Chapter 9: A factory in the classroom. Primary and middle school teachers teach "children's engineering" using vivid, hands-on lesson plans.

Chapter 10: Unleashing a new aesthetic. 3D printers are the output device computer-savvy artists, designers and architects have been waiting for.

Chapter 11: Green, clean manufacturing. What's cleaner to make? A 3D printed plastic toy or a mass-produced plastic toy? 3D printers may introduce greener living... or help us drown in a rising tidal wave of plastic junk.

Chapter 12: Ownership, safety and legal frontiers. Technology evolves faster than the law. Consumer safety and intellectual property laws will stretch to deal with printed weapons,

counterfeit products and unregulated custom-made products. Chapter 13: Designing the future.
 Why was Star Trek's Replicator used only to make Earl Grey tea? Because once we shape our tools, then our tools shape us. Next-generation design software will unshackle our imaginations, giving us new ways to imagine and edit the physical world. Chapter 14: The next episode of 3D printing. What lies ahead? Watercolor artists create infinite hues by blending primary colors. Regular people will design and blend standard materials -- or micro-scale electronic components -- and "print" them out in fine, meticulously patterned sprays. The result? Weird and wacky new materials. Robots that walk out of the 3D printer. Ready-made, responsive smart materials.

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Customer Reviews

What a breathtaking journey through one of the hottest, yet least known and appreciated new technologies: digital, compact and small scale fabrication and 3D printing. The "professional" reviews of this book fail to communicate that this book, and the technologies it sketches, are FAR from just 3D printing, and have major implications for the "what's next?" question on everyone's lips today! They are literally a next step between huge assembly lines and the Starship Enterprise

product - "materializing" machines! There are already VENDING MACHINES in China that can fabricate not only injection molded plastic products, but products with working parts, knives, coins, and much more. Granted, this book is more about printing on plastic and other less technical applications in the current generation of "real" machines, but the ramifications of the evolution from job shop to factory back to job shop are astonishing, from patent and IP questions to things like marketing, vending and distribution. Books on demand on a whole new scale-- take note! In the West, you might have seen the little "dog tag" vending machines that can create a tag for your dog with her name on it while you wait. That automated aluminum engraving application is a PALE SHADOW of what's shown in this volume, both in materials and technologies! I'm CTO at a digital animation studio (shaderjoes dot com) so you know where I'm coming from, and of course this family of technologies has MAJOR implications for the "hero" and modeling/ model - sample building industry, and digital artists in general. Not just a consumer technology, the "back room" implications for studios are HUGE.

I selected this book because the company I work for is starting to purchase 3D printers and experiment with them. But I actually came out of it slightly disappointed for one reason: the book just does not do a good enough job of describing the technologies...which is odd considering that the author(s) are both technical folks and Lipson at least, actually has done an extensive amount of work on/with/ and advancing 3D printing in general. There is a chapter on the types of 3D printing and some of the details are scattered throughout the book, but I feel it doesn't do a very good job of really comparing and contrasting the technologies, particularly in helping to understand the real pros and cons of each type compared against one another. While there is some discussion of the materials, safety, heat, and resolution achieved by the different types, the discussion is not consistent and not good enough (in my opinion) to help a reader really make much in the way of intelligent decisions as to what would be the best for a need they have in mind. Frankly the wikipedia articles on 3D printing and on the individual types do a better job of this. That said, the book is a pretty good overview of some of the current work being done in 3D printing from the more traditional - complex plastic and metal parts - to some of the "edges" being explored - organs, batteries, food. There's also mention of some of the major players in terms of websites and companies contributing to the technology and selling 3D printers. Additionally, there's a decent examination of the issues that arise with intellectual property, environmental issues, and democratization/decentralization of "makerism" and manufacturing. But there's also a lot of speculation and wishful thinking.

This book was a pleasure to read. It's informative on several levels, but also ignites the imagination. Over the past many years, various professional magazines have featured articles on what is popularly referred to as 3D printing. Over the past few years, various consumer publications have featured articles on it. The Mindconnection eNewsletter has mentioned it in the Good News column as a counterforce to the economically devastating misconduct of our misrepresentatives in CONgress. And let's not forget how the movie industry used the concept in such hits as the Terminator series. I've read a wide range of facts and opinions on this manufacturing method, but until this book those have been in article format. Articles are great, and they constitute the vast majority of my reading. But they are necessarily much more limited in scope than books are; you can cover quite a bit more in 60,000 words than in 1,500 (unless you're the typical politician, in which case you essentially say nothing but spew thousands of words). This book has two authors, and I suppose both are knowledgeable. As the Preface said, there wasn't any delineation as to who wrote what. However, it seems to read with one voice. It's clear that the authors communicated and that a good editor was involved in this book project (though some copyediting errors did crop up). It's also clear that a whole lotta fact checkin' was goin' on. I didn't find any errors of fact, and for a review of mine that is really saying something. The references are extensive, and most of those look like interesting reading. I was pleased to see two intelligently written reviews posted prior to mine.

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