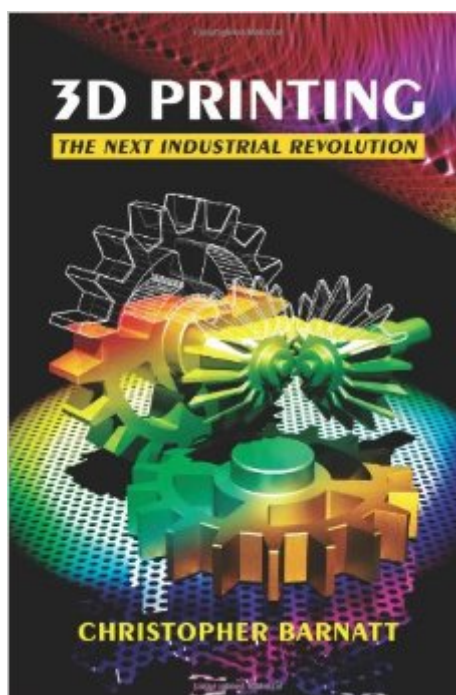


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# 3D Printing: The Next Industrial Revolution



## Synopsis

NOTE: There is an updated version of this book called 3D Printing: Second Edition. 3D Printing is about to transform our lives. While traditional laser and inkjet printers only make marks on paper, 3D printers build up solid objects in a great many very thin layers. Already pioneers are 3D printing production tools, prototypes, jewelry, sunglasses, works of art, toys and vehicle parts. But this is just the beginning, with digital manufacturing destined to change how we create, transport and store a great many things. Within a decade, some products may be downloaded from the Internet for printout in store or even at home. Already DIY enthusiasts are building their own 3D printers, while consumer models for the rest of us are just starting to arrive. Meanwhile doctors are learning how to 3D print kidneys and other replacement human organs. 3D Printing: The Next Industrial Revolution explores the practicalities and potential of 3D printing today, as well as trying to realistically foresee the impact of 3D printing on the world of tomorrow. The book is written for a wide audience, including 3D printing enthusiasts, entrepreneurs, designers, investors, students, and indeed anybody who wants to be more informed about the next round of radical technological change. Particular features of the book include an extensive chapter that details every current 3D printing technology, as well as an industry overview covering 3D printer manufacturers, software providers, and bureau services. These chapters are then supported by an extensive 3D printing glossary (of over 100 terms) and a 3D printing directory. Other key content includes a chapter on developments in digital manufacturing. This features interviews with a range of pioneering individuals and organizations who are already in the business of 3D printing final products or parts thereof. There are also chapters dedicated to 3D printing and sustainability, bioprinting, and personal fabrication.

## Book Information

Paperback: 276 pages

Publisher: CreateSpace Independent Publishing Platform (May 4, 2013)

Language: English

ISBN-10: 148418176X

ISBN-13: 978-1484181768

Product Dimensions: 5.2 x 0.7 x 8 inches

Shipping Weight: 13.6 ounces (View shipping rates and policies)

Average Customer Review: 4.4 out of 5 stars See all reviews (21 customer reviews)

Best Sellers Rank: #547,871 in Books (See Top 100 in Books) #49 in Books > Computers &

Technology > Graphics & Design > 3D Printing #125 in Books > Crafts, Hobbies & Home > Home Improvement & Design > How-to & Home Improvements > Power Tools #1564 in Books > Computers & Technology > Hardware & DIY

## Customer Reviews

I bought this book because I had questions about what was possible with 3-D printing. This book gave a pretty good overview of what it can do, who the players are in the industry, and the prospect of future developments. So these are the questions that I had: What materials can it work with? The answer is that 3-D printing is most commonly done with plastics. The printhead melts plastic and applies it layer by layer to form a solid three-dimensional object. This is useful for forming models or creating die casts. One limitation of the process is that since each layer must be supported by the one underneath, a figure in which one part descends below everything else must be supported by props of one sort or another. You could build a cow from the legs up, but the udder would need a support. This doesn't seem like a tremendous shortcoming. Other limitations of plastic (melting temperature, hardness, and the fact that it is only a single material) are more significant. What materials can be printed? For the time being, plastics are the most common. Ceramic and metal powders are also printed. They are suspended in a binder material which holds the work together as it is created. The end product is about 40% binder, 60% target material; brittle and infirm. Additional steps are used to remove the binder and infuse the product with metal (or whatever) to create a durable, solid product. In some cases, plastics and metals can be applied in other than powdered form. They can both be melted. Certain liquid plastics can be "cured" optically, hardened by the application of light. One process has refined this to the level of individual photons; it can create incredibly detailed models.

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