

THE FUTURE OF SHOPPING

3D printing lets you design and make things on demand. Will it change the way you shop? Find out what some experts think a shopping trip might be like in a 3D printed consumer future...

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Image: Flickr/suvodeb

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Image: Flickr/lord enfield

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Image: Flickr/Dreaming in the deep south

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What do you want?

1. RIGHT FOR YOU

Sometimes it's hard to find the exact product you want. Does it come in another colour? Is there a different size? What's with those fancy bits?

3D printed objects start off as a digital file. This means you can modify and see an item in virtual space before you buy it. In the future, this could mean you get the 3D printed product you want every time.



You can modify the design for these shoes to make them the perfect fit

Image: Wikimedia Commons/EdytaZwirecka

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What do you want?

2. EASY ACCESS

Over the past few years 3D printing has become more available. You can buy a basic printer for under £1000, or access one through an online printing company.

The products these ‘consumer’ printers make are limited to simple, plastic items such as phone cases.

But despite the limits of consumer printers, a large number of people are opting to use them to personalise and print their own stuff.



A 3D printed phone case.

Image: Flickr/John Biehler

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What do you want?

3. PERSONALISE IT

What's the appeal of 3D printed personalisation? Duann Scott from online 3D printing marketplace Shapeways explains:

'3D printing gives you the opportunity to have something unique. Designing, customising and making something yourself - it makes the object more significant. You can put your name on it, choose colours, sizes, shapes... make the things in your life unlike anyone else's.'

You don't even have to tweak an existing design. You can create something new - once you learn the design software.

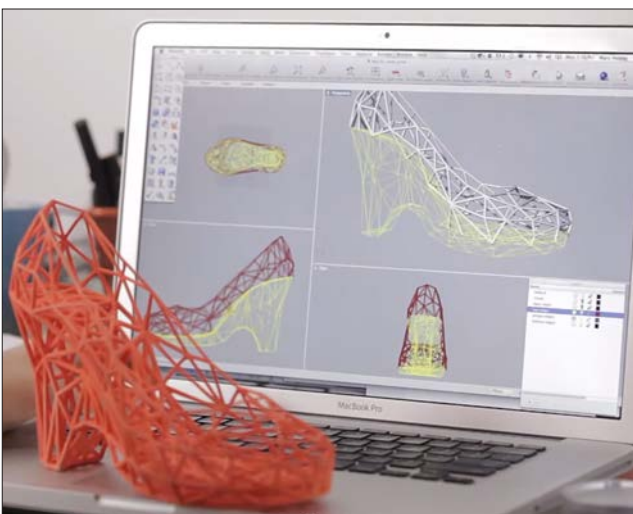


Image: Strvct Shoe courtesy of Continuum Fashion

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What do you want?

4. DESIGN IT

For some 3D design programs you need an expert just to handle the basics. But easy-to-use 3D design software is becoming more common. Lisa Harouni founded Digital Forming to make it easy for everyone:

‘Our team of software designers are improving the user interface, making the software easier to use. As it becomes more available more people will be inspired to create and make their own things.’

Will 3D design *really* catch on?



Lisa Harouni and the team

Image: Digital Forming

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What do you want?

5. DESIGNERS OF THE FUTURE

Martin Stevens runs 3D technology company it is 3D. He teaches UK school kids 3D design and technology:

‘3D printing is an amazing technology that inspires creativity. I think 3D design will be a big part of everyone’s lives, but it’s important to introduce 3D design and printing to kids as early as possible. It could encourage them to become architects, engineers or designers.’



Just like using computers, if children get into 3D design early it could become second nature.

Image: it is 3D Ltd

6. PRINTERS OF THE FUTURE

At the moment, consumer 3D printers can make simple, plastic objects. In the future, advanced industrial printers could become more generally available to people.

Artist Bathsheba Grossman thinks these printers will be used to make the products consumers *really* want.

‘High-end printers can print in steel, bronze or even gold. I use them to make beautiful things that can be completely individual - *this* is the future of 3D printing for consumers.’



Image: Bathsheba Grossman

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Where can you find it?

1. HIT THE INTERNET

What if you're not quite ready to tackle 3D design software and make the design yourself? Where can you get hold of a design to tweak?

There's an array of 3D printing companies with websites full of customisable digital designs.



Image: Flickr/rich115

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Where can you find it?

2. THINGIVERSE

Thingiverse.com is one of the largest online databases of 3D designs. 3D printing company MakerBot created Thingiverse in 2008. CEO Bre Pettis told us:

‘We have digital designs for all sorts of items, from models and toys, to jewellery and homeware. These designs can be viewed and downloaded online, just like music off iTunes, but designs on Thingiverse are all free.’

As 3D printing becomes more popular and available what are the unexpected benefits?



Customisable birds on Thingiverse.

Image: Jennie Hills/Science Museum

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Where can you find it?

3. ENCOURAGING ENTREPRENEURS

MakerBot's Jenifer Howard explains how 3D printing helps you see the world differently:

'It encourages creativity; you think, "I could make that better." People around the world are uploading their 3D printable designs for anyone to play with, alter and print. Some use 3D printing to fix old items. Some even sell their designs. 3D printing helps create entrepreneurs.'

With all these designs out there, how do you find the design you're looking for?



Image: Flickr/Mike Licht

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Where can you find it?

4. SMART SEARCH ENGINES

3D web entrepreneur Seena Rejal has a clever way to find designs online:

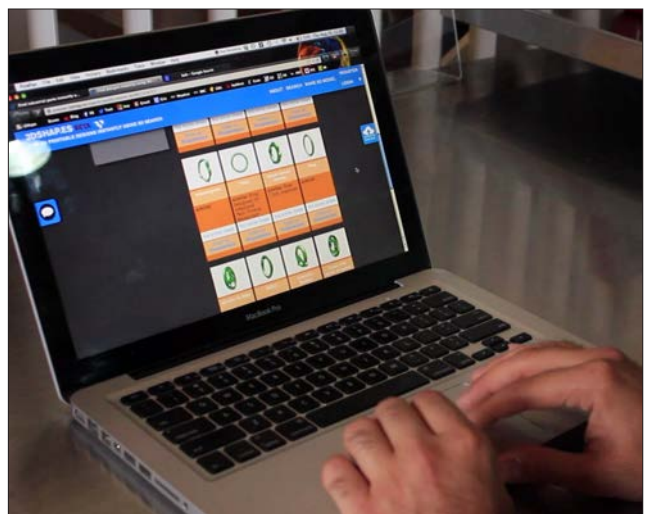
‘We’ve created a new kind of search engine that searches for 3D shapes the way normal search engines search for words. If you saw something you liked you could scan or photograph it, upload it to the search engine and find a digital design.’

The search engine will find 3D designs that are similar in geometry and shape to the object you’ve uploaded.



Seena Rejal

Image: Science Museum/Chocolate Films



3D search engine

Image: Science Museum/Chocolate Films

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How do you get it?

1. SPECIAL DELIVERY

If you know what you want, and can find a design for it online and perfect it, how do you get it made?

Easily – in fact you don't even need to buy your own 3D printer. Most websites for 3D printable designs can arrange to have it printed and sent to you.

However there are new, faster ways to get your 3D print to your doorstep.



Image: Flickr/dok1

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How do you get it?

2. LOCAL 3D PRINTING

Bram de Zwart and Brian Garret set up 3D Hubs, a website that connects designers with printers so you can have something printed close to home. Bram explains:

‘3D Hubs is an online database of people with 3D printers. Type in your address and people close by that can print your object will appear. Pick one, e-mail us your design, and we’ll send it to them.’

What about the high street?



Bram de Zwart and Brian Garret

Image: 3D Hubs

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How do you get it?

3. WHAT ABOUT THE HIGH STREET?

You might expect to take care of all your future 3D printing needs without ever leaving your home. But not all 3D printing will be ordered online – shops could provide 3D printing services like old-fashioned copy shops.

Staples are one of the first large retailers to catch on. They have introduced 3D printers in stores so customers can 3D print items, or buy their own printer.

What about other shops?



Image: Science Museum

4. 3D PRINT SHOPS

Candice Majewski, a lecturer in mechanical engineering at the University of Sheffield, thinks 3D printing services on the high street could be commonplace in the future.

‘Certain one-off items, like replacement parts for your washing machine, could be 3D printed for you in a hardware store. Instead of sending you a replacement part, the manufacturer could send the file to a local store to print for you.’



We could go into a shop to get a replacement part printed, such as a new handle for a utensil.

Image: Flickr/Creative Tools

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Will it coast the Earth?

1. BUDGET BESPOKE

Right now, if you want something unique and custom made, you're going to have to pay more. Lisa Harouni from Digital Forming thinks 3D printing could change this:

'Getting a professional to design and make you a unique product can be very expensive. 3D printing makes access to one-off manufacturing easy, so you could design something yourself and get it printed, saving money.'

Will it just be high-end bespoke items that get cheaper because of 3D printing?



Lisa Harouni

Image: Digital Forming

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Will it coast the Earth?

2. CHEAPER TRANSPORT?

Some argue that 3D printing everyday items locally will reduce the need to ship things thousands of miles from factories overseas, saving big bucks on transport costs.

Better still, less need for international shipping would help the environment.

But not everyone agrees...



Mass-produced products are shipped all over the world. Could we save money by producing things locally?

Image: Flickr/Derell Licht

3. ENVIRONMENTAL ISSUES

Phil Reeves from Econolyst, a 3D printing consultancy, doesn't think printing locally will save money.

'A printer needs to heat up and takes hours to print one thing. The cost of a million people printing in a million different places will be huge. You're better off producing things in factories, where it takes 15 seconds.

'As for the environment, transportation is only a tiny fraction of the energy it takes to produce something.'

What's worse, some argue 3D printing will create a sea of plastic junk...



Phil Reeves

Image: Phil Reeves

4. SEA OF PLASTIC?

Jenifer Howard, from 3D printing company MakerBot, disagrees:

‘3D printing has been around for over 25 years. It’s only recently that consumer 3D printing has become popular. With this came the need to print with more friendly materials. So our consumer printers use PLA, a bioplastic made from corn that’s compostable. And it smells like waffles when it’s printing!’

What about other biodegradable materials?



PLA is a non-toxic material, safe for people to use in 3D printers in their office and home.

Image: Flickr/washuugenius

5. BETTER MATERIALS

The increasing popularity of consumer 3D printing has driven materials scientists to come up with new, friendly materials to print with.

MakerBot's CEO Bre Pettis explains a recent innovation:

'Our Flexible Filament was recently used to make a 3D printed dress – the Verlan Dress. It's environmentally friendly and flexible. If you immerse it in boiling water it becomes a malleable material that can be reused.'



MakerBot partnered with Brooklyn designer Francis Bitonti to create the Verlan Dress using Flexible Filament.

Image: Christrini