

3D printed final parts for high-value snow machines



"With the Ultimaker, I can print a nozzle in 7 hours, I can test it, make a small adjustment and print another one. There's also a huge cost difference between outsourcing this and doing it myself. In-house 3D printing cost me a couple of euros worth of plastic whereas with outsourcing it was £125 every time I wanted to make a design change."

— Paul Denney,
Head of Research at Snow Business International

Snow Business uses Ultimaker to speed up its iterative R&D process,
achieving significant cost savings along the way.



Company

Snow Business International

Industry

Film, TV and Advertising, Events, Visual Merchandising

Challenge

With the long turnaround times and high costs associated with outsourcing, Snow Business sought an on-site solution for prototyping, functional testing, and creating the final nozzles for its snow machines.

Solution

With the Ultimaker, nozzles can be created in-house within a few hours and at a fraction of the costs of outsourcing. In the long run, this turned out to be more cost-effective, as the first printer paid for itself within just 2 weeks.

Results

- Accelerated R&D, no dependencies on third party agendas
- Cost savings
- Accessible solution without the need for specialized training
- Design freedom with water-soluble PVA support

Snow Business - Introduction

Snow Business is the world leader in snow and winter effects. The company develops snow machines that are used in the film and TV industry as well as on Christmas fairs and other live events. They work with big budget production companies and are featured in films such as *007: James Bond*, *Kingsmen*, and *Bridget Jones's Diary*.

A major focus of R&D is the machine's nozzle, which is where the machine mixes air with fluid to create the snow effect. The nozzles have a complex air and fluid flow geometry, which makes it impossible to cast them. The only way to create new nozzles is by 3D printing. They are developed through an iterative process of print, try, adjust the model, and repeat - often taking numerous revisions before reaching a design that matches the high-quality standards the company set. Snow Business uses their Ultimaker 3D printers for prototyping, functional testing, and creating the final nozzles for the snow machines.

Challenge

Previously, production of the nozzles was outsourced to SLS service bureaus. The turnaround time for this outsourcing solution was anything up to 7 days and it was £125 minimum order. Since the development of new nozzles is done through an iterative process that requires numerous revisions, this significantly held up the R&D process, so Paul started looking for a solution that he could use himself on-site.

Solution

Paul got the Ultimaker for prototyping and producing new nozzles for the snow machines. In stark contrast with the outsourcing solution, he can now print new nozzles in a matter of hours and at almost no cost. He is no longer dependent on suppliers' agendas when developing new nozzle designs as he can simply print a new design from his desk, test it, make small alterations, and print a new one.

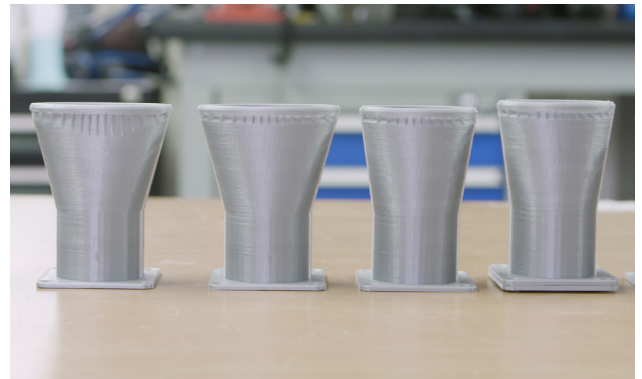
Results

While he could still use the SLS service, the in-house solution turned out to be more cost-effective in the long run. Having the Ultimaker allows him to test more designs in a shorter time frame and reduces the costs of making design iterations. Paul estimates the first printer they bought for the company paid for itself within just 2 weeks.

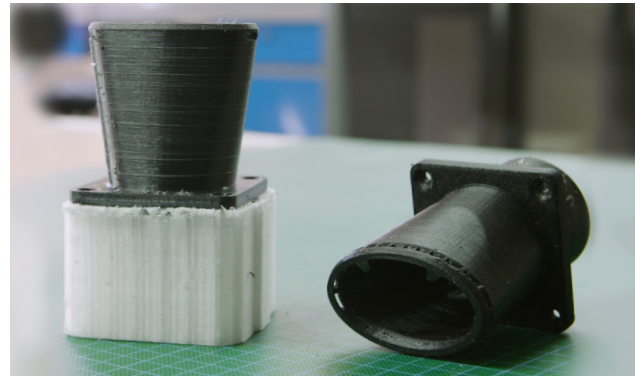
Cost comparison

	SLS service	Ultimaker 3D printers
Cost per iteration	£125	£2.50
Lead time	7 days	7 hours

Note: these numbers relate to the iterative R&D process. When going into production, the cost per iteration of £125 for SLS service bureaus can be spread across multiple nozzles, likely shrinking the per-nozzle cost of SLS service bureaus to £25.



No longer having to wait for parts to arrive means the iterative R&D cycle can be sped up significantly, allowing for more ideas to be tested in a shorter timeframe.



Instead of having to pay £125 for every design cycle, new nozzles can now be printed for a couple of pounds worth of plastic, giving rise to significant cost savings.



The Ultimaker can be operated without the need for specialized equipment or training, which makes it an accessible alternative to outsourcing.

About Ultimaker

Since 2011, Ultimaker has grown to become a leading brand, creating accessible, professional desktop 3D printers. The company has offices in the Netherlands, New York, and Boston, with production facilities in both the U.S. and Europe. With a growing team of over 200 employees, plus over 24,000 active community members, Ultimaker strives to deliver the highest-quality 3D printers, software and materials, without compromise.

General inquiries: info@ultimaker.com

Find a local reseller: <https://ultimaker.com/en/resellers>

Ultimaker

