



SCALABILITY:

Prototyping to production with 3D printing



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OVERVIEW

UWTi presents users with a simple challenge, connect interactive bricks to display the same color. There's just one complication, the bricks change color depending on how you connect them.

The UWTi brick is composed of an outer housing, electronic components, LEDs, and a translucent cover. The founders created a brick with a custom housing, designed to perfectly match the electronic components while ensuring a sleek, modern look.

Producing the game, was a new challenge for Arnaud and Arnaud, going from prototyping to small series production in a short time. With 3D printing, Arnaud and Arnaud were able to adapt production to market demand, to reduce inventory and production overruns.

The Challenges:

1. Develop the brick from scratch with rapid prototyping and ensure that the design would convert into a quality finished product which could withstand repeated use.
2. After validation, shift to commercialization, scale up production, and launch the business game on the market.



With 10 years of experience in consulting and innovation, Arnaud Brachet and Arnaud Le Cat have turned their focus to revolutionizing team building and training with an interactive business game, UWTi.

Their mission is simple, reinvent and innovate the way of managing and working for today's workforce.

As trained engineers, Arnaud and Arnaud specialized in design and consulting, and focused on the problems of innovation and management to transform the world of teamwork training.

Created for managers and professional consultants, coaches, and trainers, the game mobilizes a team around a unifying and straightforward objective.

[UWTI.IO](https://uwti.io)

3D printing can meet several business needs: research, prototyping, small series production, and even mass production. Discover how the use of 3D printing can evolve throughout your project.

Rapid Prototyping

3D printing is a well used manufacturing process for rapid prototyping. When creating a custom housing, it can take many tests to ensure that all electronic components fit and function properly. Using the powder-bed fusion, SLS 3D printing technology, Arnaud and Arnaud found an affordable and quick way to produce, test, and iterate their parts. The main benefits of powder based technologies over desktop 3D printing are the surface quality and accuracy. These prototypes give an accurate representation of the finished product since they don't require support structures or manual post-processing.

During the prototyping stage, Arnaud and Arnaud were also able to take advantage of integrated assembly in designing and testing their housings. By integrating brackets, clips, and holes for threaded fasteners directly into the design, they were able to reduce the number of components, simplify their supply chain, and optimize the overall cost to produce the bricks.

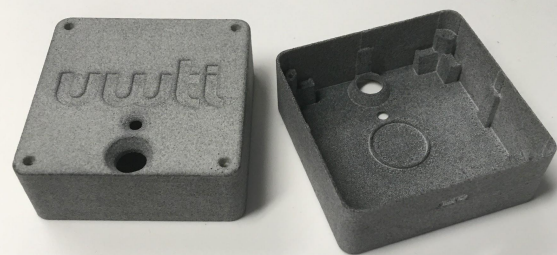
Scaled Production

After validating their design, Arnaud and Arnaud shifted their focus to commercializing their game. Their positive experience with 3D printing and satisfaction with the quality of the materials led them to produce the first series with 3D printing.

Choosing 3D printing to scale their production allowed them to significantly reduce their time to market and initial manufacturing investment. Rather than waiting months and investing thousands into developing a mold for injection molding, they once again relied on the quality and accuracy of 3D printing to produce 500 interactive bricks.

For the commercial version, Arnaud and Arnaud switched to Multi Jet Fusion technology, which offers a raw, "industrial" grey finish without any post-processing. Jet Fusion PA12 is abrasion/scratch resistant, UV light and temperature stabilized, ensuring these bricks will stand up to years of use.

As they were unsure of the reaction of the market, 3D printing allowed them to produce according to their needs, gather feedback from their clients, and if necessary make adjustments to the design. With Sculpteo's online platform, Arnaud and Arnaud get an instant quote and order exactly the quantity they need, when they need it. The interface's 3D visualisation tool allows them to complete final checks, compare materials and finishing options, and compare prices in real time.



Housing printed in Jet Fusion PA12



Final UWTI interactive brick

Material Spotlight: PA12

PA12 is the most used 3D printing material for scaled production. As a powder based technology, the surface finish is uniform and smooth to the touch without visible layers. Available in unfinished form in both white (SLS technology) and grey (Jet Fusion technology), PA12 is the most versatile polymer with good all-around mechanical properties.

Both SLS and Jet Fusion PA12 varieties offer a variety of finishing options from dyeing to chemical smoothing, giving the quality and aesthetics of injection molded plastics.

[Learn more about PA12.](#)
